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The Personnel Journal

Continuing the Journal of Personnel Research

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The Personnel Journal

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The Human Factor in Production

By Otto Lipmann, *Institute of Applied Psychology, Berlin*

TRANSLATED BY HEINRICH KLÜVER

The continuing advance of industrial mechanization raises new problems for industrial psychology. Increasing numbers of workers are engaged in occupations in which their own efforts or special abilities contribute but little to either the quantity or the quality of the output. Dr. Otto Lipmann, co-founder and director of the first Institute of Applied Psychology, has observed widely and thought deeply regarding the significance of these facts. In this closely wrought manuscript, read at the Technopsychological Congress in Paris last October, he outlines the foundations of a technopsychology adapted to modern industry, and points out the researches needed to lay these foundations solidly.

The trends of industrial mechanization are scrutinized. The factors affecting quality and quantity of output are described, and attention is called to the decreasing importance of the effort and ability of the individual worker. These facts are most significant for vocational psychology; for in many industries, tests of aptitude would be futile, either because one applicant can learn the work as readily as another, or because real aptitude for the work can only be ascertained after long experience on the job. Selection of workers for those positions which involve responsibility or special skill ordinarily takes place in the plant, from among experienced men already employed.

One basis for classifying industries and jobs is according to the rôle the human factor plays in determining output. Five criteria useful in measuring the relative contribution of the worker's own effort and ability are: the tempo chosen by the workman; the mechanically imposed tempo to which the workman can adjust himself; the avoidance of errors; the speed and efficiency of the worker in eliminating disturbances and irregularities as they arise; and quality of work in the narrower sense. These latter qualitative criteria are becoming more important than the quantitative.

The psychological results of mechanization are described as they affect the worker's attitude toward his work. Monotony does not inhere in the repetitive job as such. The inter-relations of repetition and monotony, attention, fatigue, output and the interest of the worker in his work are described, and certain researches fundamental to the advance of technopsychology are recommended.

THE problem of the share of the worker in determining output consists really of two problems: (1) How *large* is this share? (2) What is the *nature* of this share?

The *size* of this share varies with different industries and the different work processes of an industry. In comparing, for example, anthracite and lignite mining it becomes apparent that in lignite mining the working of the lignite as well as of the waste is almost entirely done by mechanical underground loaders. In comparison with these machines, the work of the few laborers still found at the present time in a lignite mine is relatively unimportant. The situation is quite different in an anthracite mine where the work of the miners is still of great importance, at least besides and in connection with the working and hauling machinery.[1]

The situation is about the same in the textile industry,—comparing the job of sorting the raw material(e.g. the flax), with the spinning proper.

FACTORS AFFECTING OUTPUT

Technical change

In addition to such a simultaneous comparison, a successive comparison must be made. How does the size of the share of the worker in determining the output change in the course of time in a certain industry? It is only necessary to recall here the development in techniques and engineering in order to recognize that in general this share is rapidly decreasing. The rate of this development is shown, for example, by the fact that in 1913 at least 95 per cent of the output of coal in the Ruhr district was mined by hand and blasting, in 1925 only 52 per cent, and in 1926 no more than 33 per cent. The remaining shares of, first 5 per cent, then 48 per cent, and finally 67 per cent, have been gradually taken over by coal mining machines,—by drills, under-cutting machines, etc.

Today, for every worker in Germany we have three mechanically produced horsepowers; that means the efficiency of every worker has been increased 226 times. More and more, machines are used for new kinds of work and for manipulations which were previously considered so complicated or so dependent upon intelligence as to create the impression that it was impossible to find a substitute for the workman. The most highly developed machines in this respect seem to be those in the textile and printing industries.

The fact that even more difficult jobs can be done by means of machines may be illustrated by an example reported by Dr. Giese. A selenium cell was successfully used for the detection of errors in papers, reducing the number of workers engaged in this kind of work from 130 to zero. A cross-section of an industry drawn today with the view of determining the share of the worker in the output

[1] [Herbert Feiss of the University of Cincinnati, in his recent illuminating volume describing Labor Relations in the Procter and Gamble Company, when characterizing the work in the great soap factory at Ivorydale, says, (p. 8) "Furnace, pump, mill, and tank apparatus do the work; men watch, control and aid, but the force and rate of production is far outside their power."—*Editor.*]

is out of date tomorrow on account of the rapid development in techniques. The relation between the different organizations of a certain industry is constantly shifting since only the financially strongest organizations are in the position to utilize the most recent technical discoveries. The competitive power of the smaller and financially weaker organizations, therefore, is constantly in danger and the industrialization of handicraft is inevitable. I call your attention to the development from the shoemaker's trade to the shoemaking industry.

Nature of the work process

But it is not only the different degrees of mechanization which are responsible for quantitative differences in the share of the workman in determining output. Differences of this kind are to a certain extent determined by the nature of the work process. If a miner works a good seam, his output is much larger than when he strikes a fault and expends the same or even more effort (as far as the latter can be measured by the output of coal mined). It is even characteristic of many industries in which the output is to a considerable extent dependent upon the quality of the material and the maintenance of the machines, that the amount of effort put in *increases* with the frequency and the proportions of the interruptions, which, in their turn, *decrease* the output. The quality of the material to be worked on may be determined (1) by *nature*, as in coal mining, or (2) by the *turn of the market*, as in the textile industry where it becomes at times necessary to use inferior raw materials; or in the iron and steel industry where the price of scrap-iron is of great importance for the composition of the charge and, therefore, for the output; or (3) by the *amount of effort* put in by the workmen who hand over the product in a preliminary state, as in spinning and weaving when it comes to the further fabrication of products.

In this connection it must be said that the *quantity* of output is frequently no definite measure of the amount of effort put in by the workman. It may become necessary to look for other measures. But we shall drop the problem of measurement at present. We shall discuss it in more detail below.

Decreasing importance of effort

For the time being we are interested in the importance of the following two facts for the "science of labor" (*Arbeitswissenschaft*): (1) that the share contributed by human work to output is nowadays very slight in *a great number* of industries, and (2) that it is rapidly decreasing in *all* industries.

These facts are important for those problems of the science of labor which deal with the effort of the worker as a variable and with conditions determining its variability. We may have to deal with the inter-variation of this factor and its dependence on aptitude, age, sex, occupational experience, etc., or with its intra-variation, that is with the dependence of the effort of the worker on his subjective and objective readiness, on his willingness to work, and his abilities which in turn are or may be influenced by wages and hours of work.

Inevitableness of the modern trend

We shall not discuss any further the fundamental importance of mechanization for the problem of wages and hours. But from the standpoint of welfare, I shall call attention to one of the necessary conclusions with regard to wages and work-hours. There is no point in resenting the "soul-destroying" character of work as a result of continually developing mechanization and the fact that more and more the worker loses the inner contact with his work. There is no sense in trying to stop this process which is closely linked up with the growth of industry itself and which could be reversed only by reversing the development from handicraft to industry. When we recognize this trend of modern development, it is not for the organization of work itself that definite conclusions present themselves.

There is ample justification for the conclusion that the introduction of every new labor-saving machine and every new work method should be accompanied or at least immediately followed by a shortening of the work-hours and an increase in pay, or at least not a decrease. The reasons for this cannot be discussed here at length. I shall enumerate them very briefly: such a policy combats unemployment; increases the number of consumers; increases purchasing power; and promotes a friendly attitude of the workers towards scientific management.

These points are also of great importance for certain fields in the science of labor, for fitting the worker to the work on the basis of scientific methods, and for the organization of work. Considering the fact that today the importance of the worker for output is very slight and, tomorrow, will presumably be still slighter, the question arises: which are the industries and occupations which make it still worth while to use elaborate methods for fitting the worker to the work? Is it really worth while to devise and to use elaborate methods for testing the vocational aptitude of telephone operators when, after a few years, we shall presumably have automatic telephones everywhere?

BASIC PROBLEMS OF VOCATIONAL ADJUSTMENT

Classification of industries and jobs

A practical and scientific treatment of the problem of fitting the worker to his work will make it necessary to prepare a list and a rank-order of the different industries and kinds of work, in which every industry is characterized (1) by its demand for workers, and (2) by the share the worker has in the output. The answer to the last question is not an armchair matter. We need objective criteria. We need to know especially whether and how much the output changes when—other things being equal—the same worker is always kept responsible for this output over a longer period of time; and when, at the same time, different workers are engaged in the same processes of production.

In other words, what is the relation between the change in the output as brought about by the inter- and intra-variation of *workers*, to the change brought about by differences in raw material and by the fact that the work processes do not suffer any interrup-

tions? The problem of *fitting the worker to the work* becomes important when only the worker is of outstanding importance; the problem of scientific management arises where other factors, as well as the worker, prove to be relevant.

Futility of tests of aptitude in certain industries

There is no sense in fitting the worker to the work if in a given industry we find that, over a period of several months, workers do not differ or differ only slightly in their efficiency as measured by output, or that fluctuations in output, brought about by changes in the efficiency of the workers, are negligible in comparison with those which are brought about by objective differences. Such objective differences may be also caused by differences in the goods to be manufactured, as may be the case in the textile industry and in the iron and steel industry. Here it should be the aim of the management to do away with all external interruptions (temporary lack of material; interruptions in the working of the machine; fluctuations in the price of raw material; frequent change in the product manufactured). But if we find that there is a constant difference in the output of different workers, a difference which cannot be accounted for in terms of incidental differences in raw material, in the working of the machines, etc., then, as things stand, the problem of fitting the worker to the work is still a problem. But even so, we may follow the general trend of development and relieve man of the responsibility for output by attempting still more thorough mechanization of the work and by improving the *objective* conditions for work.

If, for example, the efficiency of some workers in a plant is to a great extent dependent upon the kind of illumination, one may either take specially selected workers for the job who are capable of doing work in rooms with poor illumination, or one may improve the illumination in such a way that it is adequate for all workers.

The situation is not always as simple as in this example; but in far more cases than we may expect, it is relatively easy to change a work process requiring highly qualified and carefully selected workers in such a way that the work can be done by almost any workman.

Whether we take the one course or the other is in most cases a question of *relative costs and profits;* in other words, this question is not a concern of the *science of labor*, but of *management.* All that the science of labor has to do is to show that both of these courses or only one is *possible.*

Along with this continually developing mechanization there is a change, not only in the size of the share human work has in the output, but also in a far more conspicuous way, a change in the methods by means of which man is able to influence the output. If the attempt is made to relate human ability or efficiency to output, i.e., to use the one as a measure of the other, it becomes more and more necessary to give up the idea of characterizing the output by a number which designates the *quantity* of the output in a given time-unit. This holds wherever the quantity of the output depends upon natural or other

objective conditions. It is, of course, not difficult to see that it is nonsense to measure the effort put in by a hoisting engineer by the quantity of coal hoisted. But whenever there is still a direct contact between the worker and the product of work, we are inclined to overestimate the closeness of this contact. The operator of a loading machine in a lignite mine of today exerts a direct influence only upon the regular working of his machine; that means, he can influence to a certain extent the avoidance of interruptions, and the speed with which interruptions are attended to, but he can influence the quantity of lignite hoisted by the loader only very slightly and indirectly. His ability shows up best just in those moments in which the loader does *not* hoist any coal on account of interruptions.

CRITERIA OF EFFORT AND ABILITY

It is of utmost importance for the science of labor and especially for the problem of fitting the worker to the work to set up a classification of occupations and of the different jobs. In such a system the occupations should be arranged on the basis of the symptoms which may indicate the effort put in by the worker and his degree of ability. Five such symptoms are:

(1) *The tempo chosen by the workman himself* for doing a certain job.

(2) *The mechanically determined tempo to which the workman can adjust himself*, or the number of machine parts (e.g., spindles) or machines (e.g., looms) he is able to operate.

Here we must take into consideration whether the question concerning the ability of the workman appears as an *alternative* question, as in conveyor-assembly work where the worker either can or cannot keep up with the tempo of the conveyor, *tertium non datur;* or whether, because of too rapid a tempo or too great a number of machines to be tended, etc., the quality of the work becomes inferior.

(3) *Avoidance of errors* in the course of the work process. Such "errors" may appear

(a) in the work process itself, e.g., in endangering the working of the machines;

(b) in defects of the product, e.g., in errors in weaving, or

(c) in endangering oneself or other persons, i.e., in accidents.

(4) *Speed and efficiency displayed in eliminating disturbances and irregularities* caused by the kind of material used or by the machine, as in tying torn threads in spinning and weaving; or in avoidance of hazards by a truck driver.

(5) *Quality of work*, in the narrower sense. In the production of art novelties, for example, this quality can be measured, not by the number of errors, that is, by the deviations of the product *below* the standard, but, so to speak, by the deviations *above* the standard.

Value of qualitative criteria

The more the output is independent of the worker, the less appears the contribution of the worker's effort to the output. Or if it does appear, the last mentioned qualitative symptoms indicating ability for work are very likely to take the place of the first mentioned quantitative symptoms.

The aptitude of a man for this or that line of work, then, is to be measured more by the *quality* of the work, and not by quantitative measures.

If the quantity of production is chiefly determined by the speed of a machine not to be regulated by the worker himself, the output of the worker, which may be partly determined by his abilities, should be viewed only with respect to the difference between the "practical efficiency" reached by him and the theoretical efficiency when making the most of the mechanical power of the machine. In calculating this theoretical efficiency, we have to take into consideration the "normal" periods of idleness of the machine which are determined by kind of material and product. Idle periods are absolutely necessary, as in spinning and weaving for changing the spools and shuttles, for the inevitable breaking of threads, etc.

Where vocational guidance can function

Inasmuch as qualitatively superior work (avoiding and quickly eliminating errors and interruptions) requires, in general, higher functions than work which demands nothing but speed or mere energy, it becomes apparent that the continually advancing process of mechanization on the one hand, renders the majority of workers unnecessary or degrades them into cogs of a wheel, and, on the other hand, *requires always more highly qualified skilled workers.* The problem of fitting the worker to his work, which, as we have shown above, loses its importance because of the mechanization of work, thus gains a new and still higher importance; but it assumes this new importance in the plants themselves. Whereas today we still seek to determine the aptitude of a worker *before* entering an occupation, this new aspect implies that in the plant itself the few highly qualified men for skilled work are selected from the large mass of unskilled workers.

PSYCHOLOGICAL RESULTS OF MECHANIZATION

The worker's attitude toward his job

I should not like to close without briefly considering the continually advancing process of mechanization from the standpoint of the psychology of work. Changes in work processes and continual mechanization cannot fail fundamentally to change the attitude of the worker towards his job and his work. To begin with, there is an external change which perhaps may be best illustrated by reference to the miner. Only a few years ago the work of the miner was characterized by lonesomeness, darkness and silence. Today, the miner works in squads. His pay is determined, not only by his own effort, but also by that of his fellow-workers. The working place may be electrically illuminated; if not, it has at least more illumination than that from his own lamp. Instead of a silence only interrupted by the pick, he hears the deafening noise of coal cutters and roof-falls. The mine, previously called a "friend" by the miner, because it warned him at the approach of danger, cannot be heard any more above the noise of the machines; the friendly relationship between miner and mine is disturbed.

In general, we find that by introducing machines or mechanical processes between worker and work, the intimate contact between them has been more or less loosened. The fact that the majority of workmen must lose the sense of immediate satisfaction in their work is one of the inevitable results of technical advance. Only by interfering with technical progress itself would it be possible to change this result. Management must take into account the lack of direct incentives for work and must think of indirect stimulations for work. I shall name only one; the possibility of advancement into superior and more responsible positions.

Monotony not inherent in the job

I should like, however, to warn against characterizing the changes which have been brought about in the work of most laborers through mechanization by saying that work becomes more and more "monotonous." Monotony is not a characteristic of a job. All that we can say is that *certain* regularly repeated work processes may impress *certain* workers as monotonous. They may produce fatigue, a decrease in willingness or subjective readiness to work. Work processes which appear monotonous from the outside are by no means monotonous for many workers, since they know how to find some interesting points about the work, points which can never be detected by the outsider. Small differences in the raw material, in the way it may be handled, in the speed of the manufacturing process, etc., may be of great interest to the worker.

Interest, attention, fatigue and output

Even such work processes which are decidedly monotonous for a worker are for this reason not necessarily disagreeable for him. Many workmen prefer monotonous work just because they do not have to think about their work; they are able to day-dream or think about their families or matters pertaining to trade-unions, etc. Their attention is not entirely occupied by the mechanically performed work.

But this does not hold for *all* so-called monotonous work processes. It does not hold for the job of an accountant which, in spite of its monotony, requires constant attention. Still more disagreeable are those jobs in which it becomes unexpectedly necessary to react in a definite way to suddenly appearing danger signals. In order not to miss these signs of danger, the worker is forced to focus his attention *continually* on the work process which otherwise is very monotonous.

If a job occupies a worker mentally, and if it is tedious for him at the same time, the work soon suffers under the influence of fatigue; the *quantity* of the output decreases if the worker himself regulates the tempo of the work; or if he cannot regulate the tempo, the *quality* of the work suffers or accidents may occur. The attitude of the worker toward his work is therefore indicative of his fitness for this work; but I doubt very much that it is possible to determine this attitude before the worker has been on the job for a long time. It is possible finally to establish an inner contact with a certain work after it has been done for a long time; one may—for

internal and external reasons—finally grow fond of it after having detested it at the beginning.

The new problem of vocational fitness

Even the development in mechanization does not do away with the problem of vocational fitness; but the new aspects of this problem determined by mechanization should be clearly recognized. Such new aspects are: (1) that the fitness for certain jobs cannot be determined *before*, but only *during* practice; (2) that the degree of fitness for certain jobs can be less and less measured by the size of the output, but can be measured only by *other* criteria.

To arrive at a systematic investigation of fitness, we need, (1) a classification of the different occupations on the basis of the importance of the fitness of the worker in relation to the output; (2) a classification of the occupations on the basis of the criteria which indicate the greater or lesser degree of the fitness of the workers.

In this connection I shall briefly call attention to the work of the "Arbeitsleistungsausschuss in der deutschen Wirtschaftsenquete" in order to make a few suggestions for future lines of research in the field of the science of labor.

The objective of the "Arbeitsleistungsausschuss" as fixed by a national law is to determine "the way in which, according to data collected during recent years, changes in hours of work and in wages have influenced human efficiency." The data collected by the *Ausschuss* during the last eighteen months seem to indicate that future research, starting from changes in the output, must determine, (1) the degree to which changes in *output* depend on changes in human efficiency, and (2) the cause for any observed change in human efficiency.

As regards the conditions determining efficiency, vocational fitness plays a rôle, as well as wages and hours of work; just *what* rôle it plays besides the other conditions determining efficiency and output, as well as the degree and nature of this rôle, have not as yet been determined by systematic research, since so-called technopsychology has been viewed from too narrow an angle and has not found its proper place in the science of labor.

NEEDED RESEARCH

I recommend that the Fourth International Congress for Technopsychology initiate a systematic investigation of the following questions:

(1) What, in the different industrial work processes, is the rôle of the factor of human efficiency beside the other factors which determine *output?*

(a) How *large* are changes in output caused by changes in human efficiency?

(b) Which *symptoms* of output can be used for indicating changes in human efficiency?

(2) What, in the different industrial work processes, is the rôle of the occupational fitness of the worker as compared with the other factors influencing *human efficiency?*

(a) How *large* are differences in human efficiency caused by differences in occupational fitness?

(b) Which *symptoms* of human efficiency can be used for indicating different degrees and kinds of occupational fitness?

An Index of Local Labor Conditions

By Ralph E. Motley, *Atlantic Refining Company, Philadelphia*

Indexes for reflecting trends in the local labor situation can be of help to employment managers in planning to meet the demands of the immediate future. The index here described was devised by Mr. Motley and Mr. E. J. Benge.

Using monthly percentages for the three variables "voluntary turnover," "did not starts," and "average weekly wages," for the period January, 1920, to August, 1924, as a basis, an index for reflecting local labor conditions was constructed. The method followed was to (1) determine the standard deviation for each variable for the period, (2) from these standard deviations set up a table showing the standard deviation for each degree of each variable, (3) from these standard deviation tables ascertain the standard deviations for each of the three variables for each month during the period, (4) add algebraically the standard deviations for the variables for each month and divide by three, (5) plot this resulting figure month by month in terms of standard deviations as units on the ordinate.

To determine the accuracy of this index, it was correlated with the Labor Index for the State of Pennsylvania as furnished by the Federal Reserve Board. A correlation of +0.86 was obtained for the period 1920 to 1924, inclusive. For the period 1920 to 1926, inclusive, a correlation of +0.78 was obtained.

MECHANICAL instruments for, and methods of, reflecting various conditions are not new. They are as old as most of the sciences in which they are used; and each successive year has marked great strides in their perfection. Ammeters and voltmeters for the electrician, thermometers and hydrometers for the laboratory man, and pyrometers and steam flow meters for the engineer are some of the most common instruments used for reflecting certain conditions in these respective vocations. The importance of these instruments is unquestioned; their value inestimable.

It is unfortunate that the personnel man has no such devices at hand. How wonderful it would be if he could, by attaching a wire to each of the legs of the first man entering the employment office in the morning, be able to tell by the flickerings of some kind of an indicator in his office the exact condition of the labor market; or again, to place an ergometer down the throat of this first man and know just how many of the kind of workers he desired were available at his instant

command. In the absence of any such instrument to aid him in his dilemma, it has been necessary for him to use other means. These other means do not even closely approach the accuracy of the instruments cited, but half a loaf is better than no loaf at all. These personnel instruments, more commonly called indexes, vary in form and also in the bases on which they are established. Perhaps one which is in use in the company with which the writer is associated will serve to throw light on the subject, and offer food for thought for those who are laboring with this problem.

FACTORS REFLECTING LABOR CONDITIONS

In attempting to construct this index for reflecting local labor conditions, it was first necessary to decide which factors or variables, when analyzed and combined, would most nearly reflect the labor conditions in the locality in question. To choose from, there were at hand such variables as "per cent of lateness," "per cent of absenteeism," "voluntary and involuntary turnover and lay-offs," "average weekly wages," "did not starts," "new persons employed," and "length of service of exits." Of course these are only a few of the many variables available in the average personnel department, but they are the ones from which the final three were selected. At first four variables were selected, which included "per cent of absenteeism," "voluntary turnover," "did not starts," and "average weekly wage." It was found however, that many conditions such as inclement weather, holidays, sickness, and voluntary absence so contrived to distort the validity of the variable "per cent of absenteeism," that it was finally eliminated from the calculations.

"Voluntary turnover" is a very old acquaintance. It is surprising to know that this old acquaintance is responsible for 70 to 80 per cent of the total turnover each month in most industries. This variable is usually significant. Employees usually leave for some good reason; at least it seems good to them. It may be another job, it may be unsatisfactory working conditions, it may be wages, or it may be any one of a hundred other reasons. In a great many cases, however, it is found that the reason for leaving is to accept another position,—regardless of the deeper motive involved. Accordingly it was expected to play an important rôle in the labor index. It is not uncommon in most industries to employ persons in good faith who subsequently either report to the job and immediately leave because of some dissatisfaction, or do not report at all. This variable "did not starts" is also significant, because if jobs are scarce the individual may think twice before casting aside this means of keeping the wolf from the door. Wages unquestionably have a direct bearing upon labor conditions. If our wages are low and yours are high, all things being equal, our employee may enter your service if an opening is available. Obviously this variable earns a place in the index.

PREPARATION OF INDEX

Having selected the variables, it was thought that to plot the three independently would complicate matters.

Accordingly, the following method was followed in preparing the index.

From the monthly figures for each of these three variables, ("voluntary turnover," "did not starts," "average weekly wage") for the period 1920–1924 inclusive, standard deviations were computed. The method for

TABLE 1

Method for determining Standard Deviation for the variable "per cent of voluntary turnover"

A	B	C	A1	B1	C1
PER CENT VOLUNTARY TURNOVER	D	D^2	PER CENT VOLUNTARY TURNOVER	D	D^2
6.9	−1.8	3.24	11.7	3.0	9.00
8.4	−0.3	0.09	12.2	3.5	12.25
10.0	1.3	1.69	12.8	4.1	16.80
13.2	4.5	20.25	15.8	7.1	50.41
13.7	5.0	25.00	11.8	3.1	9.61
9.7	2.0	4.00	16.6	7.9	62.41
9.0	1.3	1.69	17.0	8.3	68.89
12.8	4.1	16.80	11.7	3.0	9.00
10.3	1.6	2.56	11.4	2.7	7.29
11.6	2.9	8.41	11.0	2.3	5.29
8.1	−0.6	0.36	11.2	2.5	6.25
4.6	−4.1	16.81	6.0	−2.7	7.29
2.7	−6.0	36.00	5.3	−3.4	11.56
1.7	−7.0	49.00	3.7	−5.0	25.00
2.3	−6.4	40.96	4.5	−4.2	17.64
3.1	−5.6	31.36	5.4	−3.3	10.89
1.4	−7.3	53.29	5.9	−2.8	7.84
3.6	−5.1	26.01	4.0	−4.7	22.09
2.3	−6.4	40.96	2.7	−6.0	36.00
1.7	−7.0	49.00	2.1	−6.6	43.56
4.9	−3.8	14.44	$56\overline{)486.50}$		$56\overline{)1,183.81}$
5.8	−2.9	8.41	8.7		$\sqrt{21.14} = 4.58$ S.D.
5.7	−3.0	9.00			
8.6	−0.1	0.01			
7.6	−1.1	1.21			
7.0	−1.7	2.89			
6.4	−2.3	5.29			
9.1	0.4	0.16			
12.4	3.7	13.69			
14.7	7.0	49.00			
18.3	9.6	92.16			
16.3	7.6	57.76			
14.2	5.5	30.25			
13.0	4.3	18.49			
12.0	3.3	10.89			
10.6	1.9	3.61			

To find S.D. for each per cent: 1 per cent deviates −7.7 from actual average (8.7)

$\therefore \frac{-7.7}{4.58} = -1.67$ S.D. for 1 per cent voluntary turnover

determining these standard deviations is illustrated in table 1, which concerns the variable "voluntary turnover." The same method applies to the other two variables. The procedure in table 1 is as follows. List the actual monthly percentages of "voluntary turnover" one above the other in columns A and A1. Find their sum and divide by the total number of cases to ascertain the average. (In this example the number of cases is 56, and the average is 8.7.) Find the deviation of each case from the average (8.7) and list in columns B and B1, considering the signs. Square each figure in columns B and B1 and place the results in columns C and C1 opposite the respective figures. Total columns C and C1 in one total, and ascertain the average by dividing by the actual number of cases (56). Extract the square root of this last average (21.14) which gives the standard deviation (4.58). In order to set up a table showing the standard deviations for each respective per cent of voluntary turnover, the following method is used. To obtain the standard deviation for 1 per cent voluntary turnover, we find that 1 deviates from the average (8.7) −7.7. Since one standard deviation is equivalent to 4.58, the standard deviations for 1 per cent would be found by dividing −7.7 by 4.58 which gives us −1.67. The standard deviations for the other percentages of voluntary turnover (2, 3, 4, 5, etc.) are found in the same manner. Table 2 shows the completed standard deviations for the three variables.

Having determined the standard deviations for the three variables, the method followed in setting up the index was to determine the standard deviation for each variable for each month separately since January, 1920. These three deviations for the variables for each month were then added algebraically, and the sum divided by three (the number of variables used).

TABLE 2

Standard deviation values

Point Breeze

VOLUNTARY TURNOVER		PER CENT OF APPLICANTS WHO FAILED TO START		AVERAGE WEEKLY WAGE	
Per cent	S.D.	Per cent	S.D.	Average wage	S.D.
0	−1.89	0	−1.67	18	−1.87
1	1.67	1	1.49	19	1.60
2	1.45	2	1.31	20	1.33
3	1.23	3	1.13	21	1.06
4	1.02	4	0.95	22	0.79
5	0.80	5	0.77	23	0.52
6	0.58	6	0.59	24	−0.25
7	0.37	7	0.41	25	+0.03
8	−0.15	8	0.23	26	+0.30
9	+0.06	9	−0.05	27	0.57
10	+0.28	10	+0.13	28	0.84
11	0.50	11	+0.31	29	1.11
12	0.72	12	0.49	30	1.38
13	0.94	13	0.67	31	+1.65
14	1.16	14	0.85		
15	1.37	15	1.03		
16	1.58	16	1.21		
17	1.80	17	1.39		
18	+2.02	18	1.57		
		19	1.75		
		20	+1.93		

The curve resulting from these figures was then plotted in terms of the standard deviations as units on the ordinate, as shown in figure 1. For example, let us assume that for a given month we find the "voluntary turnover" to be 8 per cent, the "did not starts" to be 1 per cent, and the "average weekly wage" to be $28.00.

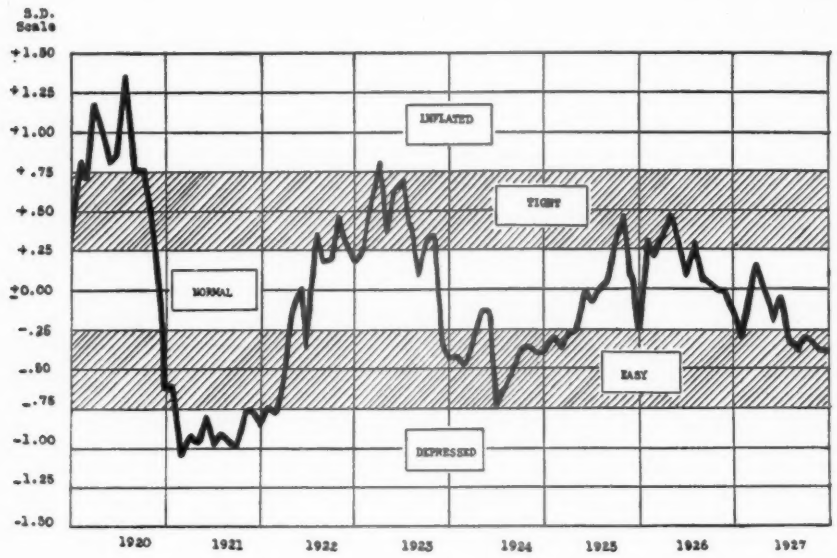

FIG. 1. COMPOSITE LABOR INDEX
Point Breeze

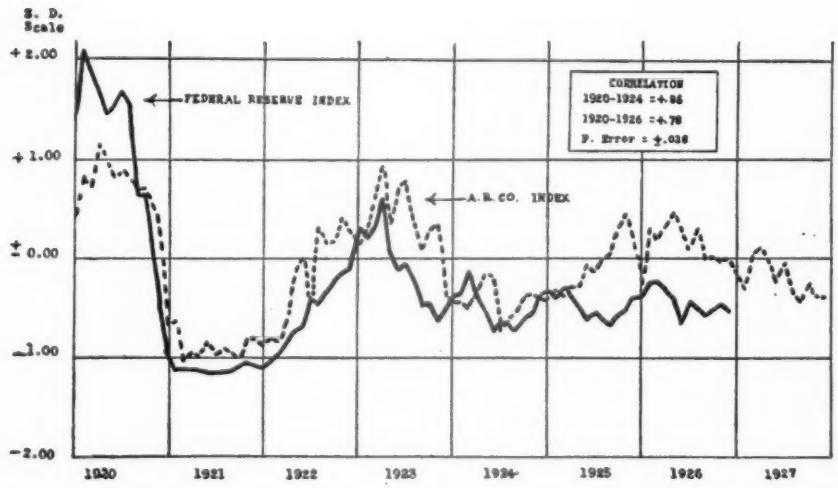

FIG. 2. COMPARISON OF FEDERAL RESERVE LABOR INDEX AND ATLANTIC REFINING COMPANY LABOR INDEX

Referring to table 2 we find that 8 per cent "voluntary turnover" is equivalent to −0.15 S.D.; that 1 per cent "did not starts" is equivalent to −1.49 S.D.; and that $28.00 "average weekly wage" is equivalent to +0.84 S.D. By adding algebraically these three amounts we find the sum is −0.80 S.D. This figure when divided by three (the number of variables) gives us −0.27 S.D. which is plotted in terms of standard deviations as units on the ordinate in figure 1.

Individual plant experience more than anything else determines just what shall be the boundaries of "normal," "easy," "tight," etc., conditions shown in figure 1. As the curve climbs above the center heavy horizontal line (0.00 S.D. equals the average of January, 1920, to August, 1924) it indicates that jobs on the outside are plentiful, and that labor is increasingly harder to get. Inversely, when the curve descends below the center line, it indicates that jobs on the outside are scarce and that labor is becoming more and more plentiful. Experience over a period of nearly four years has substantiated the validity of this index.

COMPARISON OF LOCAL INDEX WITH STATE INDEX

Since the proof of the pudding is in the eating, it was thought best to compare this index with an index reflecting general labor conditions throughout the state. After casting around and carefully studying several other indexes prepared by authorities on the subject, it was finally decided to compare ours with the index of labor conditions in the State of Pennsylvania, as furnished by the Federal Reserve Board at Washington. The method used in the preparation of this index was planned, and its construction directed by Dr. William Berridge, of Brown University, with the assistance of Mr. Woodlief Thomas, of the Division of Research and Statistics of the Federal Reserve Board. The actual method followed, as quoted briefly from the Federal Reserve Bulletin, February, 1924, is as follows: "The many series of statistics reported were carefully tested, and the variable finally selected as having the greatest significance was the monthly ratio of jobs offered to the number of persons applying for jobs. . . . In its final form, each index is presented in terms of its standard or 'normal' deviation above and below its four year average." This is essentially the same basis on which the index under discussion was prepared.

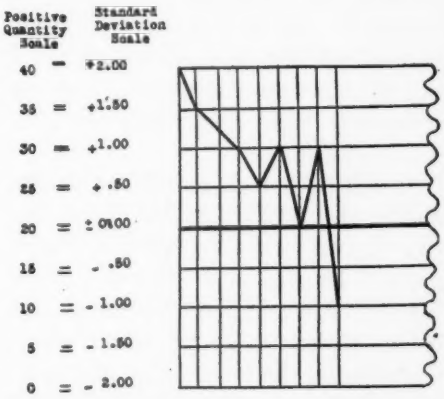

FIG. 3. SCALE FOR CONVERTING STANDARD DEVIATIONS INTO POSITIVE QUANTITIES

By superimposing the curve of the Federal Reserve Index on our own, as shown in figure 2, a striking agreement is found. To determine the

actual relationship between these two indexes, the Pearson formula for correlation was used. It was first necessary to convert the standard deviations into all positive quantities. This was done by using the scale shown in figure 3. Referring to this scale, it will be seen that −0.50 S.D. is equivalent to 15, +0.50 S.D. is equivalent to 25, and so on for all the points plotted on the chart. For the five year period 1920–1924 inclusive, the correlation was found to be +0.86. For the seven year period 1920–1926 inclusive, the correlation was found to be +0.78. In view of the fact that a perfect correlation is represented by +1.00, the correlations obtained are sufficiently high to warrant reasonable consideration.

It will be noted from figure 2 that during the two years 1925–1926, the two curves seem to take different paths. During this period an extensive construction program was being carried on at the plant which necessitated the building up of a large working force, which usually results in increased turnover, a large portion of which is voluntary. It was this decided increase in voluntary turnover that caused the two indexes to diverge (see table 2). In addition to this effect on the curve, numerous other large construction jobs were being carried on in the Philadelphia district, including the Sesqui-Centennial, the Delaware river bridge, and other projects. These conditions, while affecting both the variables "voluntary turnover," and "did not starts" would not markedly affect the general index for the entire State of Pennsylvania.

The Federal Reserve Index has not been available since December, 1926, due to the change in the basis on which the several states reported. Consequently it has not been possible to plot that index since that date. The correlation, however, for these two indexes for the seven years is sufficiently high, and our own experience with the index sufficiently convincing, to lead us to believe that our index is not too inaccurate to serve the purpose for which it was constructed.

(Manuscript received February 25, 1928.)

Student Opinion at Syracuse[1]

By Daniel Katz, *Syracuse University*

Mr. Katz gives us a splendid idea of the scope and probable uses of the Syracuse University Reaction Study. Some illustrative questions are cited from the survey, covering future life work, program of study, extra-curricular activities, scholarship, cribbing, and academic freedom; and general trends of answers are given regarding cribbing, personal ideals, and religious adjustment.
The study is noteworthy for its keen analysis of data, which many investigators would accept without reading between the lines.

THE growing recognition of the significance of personnel procedure in education suggests the desirability of supplementing the methods now in use with a somewhat broader approach. Personnel administration for the most part has been concerned with studying the *individual* student in his college adjustment. While individual case studies will continue to be the more basic methodology, a general survey of the range and extent of problems in the entire college population may be of value. Thus, the purpose of the Syracuse University Reaction Study was to discover particular attitudes, feelings and problems common to *many* students, and the distribution and significance of these factors in college life. Instead of being a personality study, the Syracuse experiment was an anonymous questionnaire which sought to elicit student attitudes on all important phases of campus and curricular situations. It offers no wealth of information on the motivation and background of individual students, but it does show the range and acuteness of specific problems on the campus,—the incidence of various attitudes and opinions. It tells how many students there are in the university who exhibit certain behavior in a given situation, how many hold a certain attitude on a given issue, how many have failed to make an adjustment in a particular situation. And it shows, moreover, what particular attitudes are apt to go together in individual students.

[1] The investigation comprising the Syracuse Reaction Study is being carried on by the writer in coöperation with Miss Margaret Babcock under the supervision of Dr. Floyd H. Allport of the School of Citizenship and Public Affairs, of Syracuse University.

SITUATIONS INVESTIGATED BY REACTION STUDY

Some idea of the range of problems covered in this questionnaire, which over ninety per cent of all Syracuse students devoted two hours to answer-

ing, may be gained from the following incomplete list of subjects included: reasons for coming to college, rating of college activities, methods of instruction, academic freedom, attitudes toward scholarship, attitudes on cribbing, adequacy and fairness of grading, sex segregation tendencies, co-education, religious activities, nature of belief in the Deity, fraternities, student self-government, and compulsory military training.

SOME ILLUSTRATIVE QUESTIONS

The results of the reaction study are as yet not available for publication but some of the items of the questionnaire will be described here to indicate the value of this method in obtaining information on important problems in college life. In addition, certain general trends in the answers will be touched upon briefly. A complete account with a detailed treatment of results will be published by the School of Citizenship and Public Affairs of Syracuse University.

1. Future life work. Vocational guidance stands out as a major problem of personnel administration, and here the reaction study may contribute some interesting facts. Students were asked in Item 16 whether they had fairly definitely decided what their life work would be. Those who answered in the affirmative were then asked as to the specific vocation they had chosen to follow, the time at which they had arrived at their decision, and the influence or influences which were most important in determining their decision. Part D of Item 16 follows:

Check the influence or influences in the following list which were most important in determining your decision:

(a) Liking for the particular kind of work.
(b) Special capacities which I think I possess for that particular work.
(c) Special opportunities which I have for preparation in that vocation or subsequent pursuit of it.
(d) Opportunities to make money through that particular vocation.
(e) Opportunities for social service through that particular vocation.
(f) Opportunities for acquiring power through that particular vocation.
(g) Opportunities for safety and security through that particular vocation (i.e., I should be protected from fear of failure).
(h) A sense of duty.
(i) To prove that I could do that sort of work.
(j) Because it was my father's vocation.
(k) Because it was my mother's vocation.
(l) Because it was a special wish or interest of my father.
(m) Because it was a special wish or interest of my mother.
(n) Persuasive influence of a teacher or professor.
(o) Persuasive influence of someone outside college other than father or mother.
(p) Example afforded by the success of father or mother in that vocation.
(q) Example afforded by the success of brother or sister in that vocation.
(r) Example afforded by the success of some great or influential person.
(s) Because of elimination of other vocations (it seemed to be the only worth while work for which I was not in some way disqualified).
(t) For some other reason not mentioned.

Inasmuch as answers were given by over 4,000 students, the data from this question will furnish some quantitative evidence on a point about which

there is considerable controversy,—namely, the extent of the confusion of the average student in regard to his future life work. It will also be interesting to discover whether the majority of students who have made a decision as to the calling they will follow made it before or after entering college. Part of the last item of the questionnaire was concerned with the vocation of the students' parents. This will give a comparison of the students' chosen calling with that of their parents.

2. Program of study. As advanced by President L. B. Hopkins, the concept of personnel administration embraces all phases of the educational problem which tie up directly with the individual. From this viewpoint the reaction of the student to the curricular situation is of importance. The Syracuse study devoted considerable space to the more significant of these reactions to curricular problems. One of the first items of the questionnaire sought to get at the basis of much of the objection to present curricular arrangements by trying to measure the degree of dissatisfaction with the present formalized program of study. In Item 6 five steps were included which ranged from the statement "My studies give me no chance whatever to develop my main interests or show what I am worth" to the statement "My studies give me every chance to develop my main interests or show what I am worth." This item will be checked against participation in extra-curricular activities to see if the students who are most active in athletics, publications, and dramatics feel that their college studies fail to provide an adequate means of self-expression.

3. Extra-curricular activities. Differences between faculty members and students have always been many, but in almost all American colleges today there is a fundamental cleavage between the two on the matter of extra-curricular activities that is of more than passing concern to a great many administrations. Students and faculty have definitely broken on student activities, and each has gone his way with little understanding of the viewpoint of the other. The reaction study in presenting some of the slants students have upon this problem may contribute some interesting information. Thus Item 6 discussed in the above paragraph was an attempt to discover whether the failure of the present program of study to provide an adequate means of self-expression played a part in participation and support of extra-curricular activities. The last item in the questionnaire called for the affiliation of students with various campus groups and organizations. This item will give us the active extra-curricular group who can be compared with other students on attitudes toward scholarship and rating of factors in college life, two other items of the questionnaire.

4. Scholarship. Attitudes toward scholarship are an indication of whether the faculty of a university are working together or hopelessly at odds with the students. They sum up the success or failure of a university. Partly for this reason the reaction study included questions concerned with attitudes toward scholarship. Students were asked to check the type of student they admired the most as well as the kind of student they would rather be if they had to be one

of a certain number. The type ranged from the athlete to the scholar. Another question had to do with opinions of honor grades. Students were asked to check a number of statements as to how honor grades were earned. The first statement read that they were attained by intelligence combined with hard work. Other statements contained "sour grapes" rationalizations as to the method by which they were attained, such as "by taking snap courses." Again, students were asked to rate the most important factors in college life from daily social contacts to athletics and college studies. Comparison of these three items will reveal characteristic attitudes toward scholarship, as will the item upon the admission of a grind to a fraternity, a later question.

5. Cribbing. Cribbing in examinations is perhaps as serious a single problem as there exists on the campus. Student mores and behavior in regard to cribbing are as significant of the general academic standing of a university as attitudes toward scholarship. In fact, scholarship, as far as the great majority of students are concerned, can scarcely exist at an institution where cheating in examinations is a common practice. Therefore, the reaction study inquired into the cribbing situation rather fully. Attitudes on the prevalence of cheating, on its justification, on reasons for its existence, on honor systems, on fairness and adequacy of grading were sought after, and toward the end of the questionnaire an effort was made to get a confession of actual behavior in the following question:

The answer to this question is optional. Should you answer it, your answer can in no way be identified, as there is no way of telling who fills out the particular questionnaires. The purpose is not to discipline anyone in any way, but simply to find out the facts as they now exist at Syracuse. Your coöperation is, therefore, requested in answering this general question. If you desire, however, not to answer it, you should not feel that your refusal is in any way compromising. Many persons object on general principles to answering personal questions of this sort.

Check *all* the statements which apply to your own case:

(a) I have never used help from a previously prepared memorandum or from another student in taking any quiz or final examination in Syracuse University.

(b) I have used such memorandum or help in one or more quizzes but in no examinations.

(c) I have used such memorandum or help in one examination only.

(d) I have used such memorandum or help in more than one examination, but only in courses where the grading of the professor was unfair or there was a great deal at stake.

(e) I have used such memorandum or help in more than one examination, but only when the attitude of the professor was in some way a challenge to do so.

(f) I have used such memorandum or help in more than one examination, but only when the professor in charge was so negligent in proctoring as to show that he did not care very much whether students did this or not.

(g) I have used such memorandum or help in more than one examination, but only when so many others were doing it that one had to do so in order to have a fair chance in competing for grades.

(h) I have used such memorandum or help freely whenever I could get it.

Even though complete frankness is not to be expected, the returns on this question will at least give the minimum extent of cribbing practices on the campus.

Of interest, too, is the item which has to do with condemnation and extenuation of cribbing. A seven-step scale was used which read as follows:

A student who would crib would lie or cheat under any similar circumstances.

Cribbing shows a serious defect in character but it is not as bad as lying and cheating.

Cribbing is not playing fair to one's fellow-students or to the faculty, but it is not otherwise immoral.

As an ideal, honesty in examinations deserves my support; but students are human and cannot be expected at present to attain this ideal.

Cribbing is not desirable, but it is generally recognized to be the only way in which a student can gain his rights when others cheat or when a wrong emphasis is put upon grades.

Cribbing is merely playing the game with the professor. He proctors the examination and is on the alert and suspicious for cheating. Successful cribbing is beating him at his own game.

Every student should take what he can get in this world. If he can get his degree by cribbing that is the thing to do.

Students were asked to check whichever of the above steps most nearly approximated their own attitude. The results will give a valuable picture of student mores on the question of how serious a breach of the moral code cribbing is. Such a picture may be indicative of other things in addition to cribbing. At any rate, it may be submitted that such an account ought to be of considerable interest to a personnel administrator.

6. Academic freedom. Academic freedom still bulks as a problem of considerable proportions in American colleges and universities. Nor has an administration solved the problem by merely adopting a policy of noninterference with freedom of expression. It has yet to contend with the unbelief of its students in this matter, an unbelief which may be deeply enough rooted to have its effect upon the student's attitude toward his college work and toward administrative control generally. And in part for this reason, the reaction study contained the following item on academic freedom:

Check the statement below, in either (a) or (b), which applies to your case:

(a) I have not formed and do not hold any opinion of the degree of freedom of speech at Syracuse University.

(b) My opinion of the degree of freedom of speech at Syracuse University is most nearly expressed by the following: (Check the statement below which most nearly expresses your opinion).

A Syracuse professor is free to express any of his ideas or convictions in class upon any subject.

A Syracuse professor is free to express any of his ideas or convictions on any subject so long as they are presented tactfully and are not violently opposed to the accepted beliefs or standards.

A Syracuse professor is free to express any of his ideas or convictions so long as he does not go too far out of his field to express views divergent from accepted beliefs or standards.

A Syracuse professor is free to express any of his ideas or convictions only so long as he stays within the field of his special subject.

A Syracuse professor is not free to express any of his ideas or convictions, even in his own subject, if they are divergent from the accepted beliefs or standards.

A comparison will be made between students who believe complete academic freedom prevails with those who are more cynically disposed, to uncover any differences in attitudes toward scholastic work and toward the administration. The purpose here is to show the particular attitudes that go together in the individual student. A certain set of attitudes may be found to be fairly common to a large number of students in comparison to another somewhat different attitudinal pattern which may also have a high incidence in another part of the campus.

RESULTS

Sufficient examples have perhaps been cited indicative of the general nature and purpose of the Syracuse Reaction Study. To make the picture a little more complete, a few interesting trends in the results may be noted.

1. Cribbing. A correlation between campus mores on condemnation of cribbing and actual cribbing behavior was at once evident. Cribbing is condemned and extenuated on the campus somewhat in proportion to the extent of its practice. Moreover, the students who crib are the very ones who condone cribbing, for the most part frankly sticking to their guns in justification of their behavior. A small group of students who have erred on only one occasion, however, show something of a tendency toward overcorrection. They regard cribbing not as a pardonable slip but as a most serious moral offense.

Another clear-cut tendency revealed in attitudes on cribbing was the relation between the belief in the universality of the practice and the behavior of the student. The cribbers believed their behavior to be the practice of the majority of the students, while the non-cribbers believed their irreproachable record to be the typical campus behavior. Thus the impression of each student that he is conforming to what the majority are doing strengthens his own actions. And the reinforcing effect upon conduct of this impression of the universality of one's behavior is not dependent upon its accuracy. It may be largely a fictitious impression and yet have potency as a sanction for conduct. Its fictitious nature is in part due to the fact that the student projects his own mental set into the behavior of his fellows.

From the administrator's point of view attention should be called to the fact that these attitudes on the morality and universality of cribbing seem to go together with cribbing so decidedly that they may be of some value in gaining insight into the amount of cribbing behavior, where that fact is unknown. For example, assuming that human nature elsewhere is much the same as it is at Syracuse, an administration can take at random some two hundred of its students and get their attitudes on the prevalence and ethical implications of cribbing, and from these attitudes have some basis for prediction as to the extent of cheating in examinations in that particular university.

On the general subject of cribbing another question was put to bring out the situations most conducive to cheating in examinations. Four reasons were set forth, namely: negligent proc-

toring, the attitude of the professor, unfair grading, and the necessity of competing with cribbers for grades. In seven of the schools of the university so far examined, unfair grading was placed at the head of the list with the necessity of competing for grades with cribbers a good second, while the seven schools varied as to the relative weight of the other two factors.

2. Personal ideals. Questions relating to personal ideals of the students have yielded some not altogether expected returns. Students in the colleges of Liberal Arts, Business Administration, Home Economics, Applied Science, Fine Arts, Forestry and Graduate School vary somewhat in their emphasis upon values, but in each one of these colleges industry was chosen over brilliance, popularity, athletic prowess, extra-curricular influence, and sophistication as the most admirable personal trait. That is to say, the industrious student is the type most admired as far as the majority of the college population is concerned with the extra-curricular leader ranking as the next most admired type. The Colleges of Forestry and Applied Science led the rest of the schools in this emphasis upon industry. Liberal Arts and the Graduate School, however, scored in choice of intellectual qualities, for in these colleges brilliance was voted a much higher position than it was accredited by the rest of the university with Business Administration and Home Economics showing the least partiality to it. Home Economics, with a low evaluation of brilliance, led the other schools in its estimate of social values and the College of Forestry was highest in its regard for sophistication. Item 8, from which these returns are cited, follows:

> Place a check at the left of any *two* of the following types of students which you admire the most:
>
> The most brilliant students on the campus.
>
> The most industrious students on the campus.
>
> The most popular students on the campus.
>
> The most active and influential in extra-curricular activities.
>
> The best athletes on the campus.
>
> The most sophisticated (wordly wise) students on the campus.

3. Religious adjustment. Although cribbing and the personal ideals of students are both directly related to the curricular aspect of the college situation, other fields were not neglected in the reaction study. The emotional side of the student's life is very often tied up in some measure with his religious adjustment and so information was sought on the religious life of the student. The following question was selected from a rather detailed section in the study on religion as of interest:

> If any change at all has occurred in your religious convictions since entering college, check the *one* statement which most nearly expresses your opinion about the change:
>
> The change in my religious views since coming to college has been accompanied by acquiring a new, certain, and satisfying philosophy of life.
>
> The change in my religious views since coming to college has been accompanied by acquiring new and satisfying convictions upon many things, but has left me troubled by certain doubts.
>
> The change in my religious views since coming to college has had no effect either to establish a new philosophy of life, or to disturb the old.

The change in my religious views since coming to college has answered certain troublesome questions, but has left me troubled about many of the important things of life.

The change in my religious views since coming to college has taken away something essential and has left nothing in its place but doubt and anxiety about all the problems of life.

About a fourth of the students who answered this question checked the first position expressing complete satisfaction with the change in their religious views. About a fifth were found in the last two steps which emphasized the doubts and mental worries attendant upon change. A fifth, also, took the middle position, stating that the change had been without effect on their philosophy of life. The mode, however, came in the second step with between one-fourth and two-fifths of all students voting that the change in their religious views was accompanied by new and satisfying convictions as well as certain doubts.

In a scale referring to the nature of belief in the Deity, seven conceptions were formulated which ranged from the old Hebraic notion of a personal God who rules by might to a mechanistic and atheistic philosophy. The step which received more votes (42 per cent) than the others in this attitude scale was the second from the orthodox extreme and read as follows:

I believe that the ultimate power of the universe (God) is a Being of unlimited intelligence and friendliness who works in accordance with the natural laws to which we adapt our lives. Nature is thus an expression of his power and goodness; and since prayer affects our moral attitude toward nature, we are in communion with Him when we pray.

Agnosticism, which occupied the middle position of the scale, received 13 per cent of the checks while but 5 per cent of the students favored the two extreme mechanistic positions. The great majority of the students in Liberal Arts hold to some belief in God, for 77 per cent of them found one of the three most orthodox of the statements to their liking, whereas only 9 per cent chose one of the three most unorthodox of the statements.

These returns on cribbing, personal ideals, and religion have been selected at random out of a large number of possibilities, the purpose being not to give a complete survey, but merely to indicate the nature of the Syracuse Reaction Study. The significance of this study in personnel work lies in the information which it yields concerning campus and curricular problems and the insight it affords into the total situation in which the student is involved.

(Manuscript received February 29, 1928.)

Occupational Interests of College Women

By Esther Allen Gaw, *Ohio State University*

Mrs. Gaw's present contribution to the significant development of the interest questionnaire and its technique, goes to prove the proposition, formulated by other research workers, that the interests of a homogeneous group remain characteristic from year to year regardless of wide fluctuations of interest among members of the group.

The Freyd occupational Interest Blank for Women was given to 191 freshmen at Mills College in 1925, and in the following year to 105 of these who remained in college as sophomores. A great similarity of interests was found between the freshmen of 1925 and the same group when sophomores in 1926. The correlation between average group attitudes with regard to the occupations is close to 1.00. The correlation between individual interests in specific occupations in two consecutive years varies greatly with the occupation, but centers about +0.50.

IN THE year 1925–1926 the Freyd Occupational Interests Blank (Women) was filled out by all students at Mills College. In the year 1926–1927 it was filled out by all entrants and was also filled out a second time by those sophomores who had been freshmen the preceding year. The blanks were tried in the hope that they would be useful in giving vocational advice. In the first year the total records of all freshmen were evaluated in order to give such advice.

In Freyd's blank there are listed sixty-seven occupations. Interest in each occupation is indicated by encircling one of five possible expressions of like or dislike. The directions are:[1]

Circle L! if you would like very much doing that kind of work
Circle L if you would like doing that kind of work
Circle ? if you have no decided feelings toward that kind of work, or if you know nothing about it
Circle D if you would dislike doing that kind of work
Circle D! if you would dislike very much doing that kind of work

In order to evaluate these choices the following arbitrary weightings were given.

L!—11
L — 8
? — 6
D — 4
D!— 1

The mean choice for each occupation and also the respective standard

[1] Occupational Interests (Women). C. H. Stoelting, Co., Chicago, No. 40021.

TABLE 1

Freyd Occupational Interests Blank, results for freshmen, August, 1925 (191 cases)

OCCUPATION	MEAN	SIGMA
1. Actress	7.2	3.1
2. Adding Machine Operator	3.5	2.2
3. Advertising Worker	5.8	2.5
4. Architect	8.0	2.5
5. Artist	7.5	2.8
6. Athletic Director	6.6	2.5
7. Author	7.3	3.2
8. Bank Clerk	4.3	2.6
9. Bookkeeper	3.4	2.7
10. Cashier	3.8	2.4
11. Chemist	4.5	3.1
12. Civil Service Employee	5.1	2.5
13. Club Housekeeper	3.6	2.5
14. Cook	3.3	2.7
15. Dancing Teacher	5.8	3.0
16. Dentist	2.9	2.1
17. Designer	8.3	2.5
18. Detective	5.8	3.2
19. Draftsman	4.8	2.3
20. Dressmaker	4.2	3.9
21. Editorial Worker	6.4	2.8
22. Elevator Operator	2.2	2.0
23. Employment Clerk	3.4	2.4
24. Factory Worker	1.6	1.4
25. Farmer	3.5	4.1
26. File Clerk	3.3	2.9
27. Gardener	4.7	3.3
28. Garment Worker	2.7	2.0
29. General Office Work	3.7	2.3
30. Governess	3.8	5.0
31. Hired Girl	1.9	1.7
32. Insurance Salesman	3.4	2.4
33. Interior Decorator	8.8	2.2
34. Interpreter	3.4	3.1
35. Laundry Worker	1.5	1.2
36. Lawyer	5.5	3.4
37. Librarian	7.0	2.5
38. Magazine Writer	7.2	3.0
39. Mechanical Dentist	3.0	2.1
40. Milliner	5.3	3.1
41. Missionary	5.1	3.3
42. Musician	8.0	3.0
43. Newspaper Reporter	6.7	2.8
44. Novelist	7.3	3.1
45. Nurse	5.0	3.1
46. Pharmacist	4.2	3.3
47. Photographer	5.1	2.9
48. Physician	4.9	3.5
49. Poet	5.9	4.1
50. Printer	4.3	3.1
51. Private Secretary, Business	5.8	3.0
52. Private Secretary, Social	7.1	2.8
53. Public Stenographer	3.7	2.4
54. Retail Merchant	4.1	2.6
55. Retail Sales Clerk	3.7	2.4
56. Scientific Research	5.6	3.7
57. Singer	7.3	4.2
58. Social Worker	7.2	2.7
59. Statistician	4.1	2.3
60. Stenographer	4.2	2.6
61. Teacher	6.4	3.8
62. Telephone Operator	3.0	2.4
63. Ticket Seller, Theater	2.2	2.1
64. Typist	3.8	2.6
65. Usher	3.0	2.4
66. Waitress	2.3	2.1
67. Window Trimmer	5.6	3.2

deviations were calculated from the records of 191 freshmen of 1925. The results are shown in table 1.

INTERPRETATION OF FREYD OCCUPATIONAL INTERESTS BLANK

It will be seen in table 1 that from the mean choice of freshmen, in the light of the standard deviation, any individual blank can be interpreted. Thus, if we find a student who has marked *Physician* as being "liked very much" we can see that that is a choice which is a very unusual one since it falls more than one standard deviation above the mean. Or if we find

TABLE 2

Freyd Occupational Interests: 105 students as freshmen in 1925 and as sophomores in 1926

OCCUPATION	M'25	M'26	S D'25	S D'26	Correlation
1. Actress	6.9	6.8	3.2	3.0	0.62
2. Adding Machine Operator	3.4	2.6	2.3	2.0	0.30
3. Advertising Worker	5.8	6.4	2.2	2.1	0.72
4. Architect	7.0	7.4	2.7	3.0	0.33
5. Artist	7.8	7.9	2.4	2.1	0.25
6. Athletic Director	6.4	5.7	3.0	2.8	0.73
7. Author	7.6	8.2	3.1	2.9	0.56
8. Bank Clerk	4.3	3.9	2.5	3.1	0.38
9. Bookkeeper	3.4	3.4	2.1	2.1	0.41
10. Cashier	3.9	3.5	2.3	2.3	0.54
11. Chemist	4.6	4.5	3.4	3.3	0.62
12. Civil Service Employee	5.2	5.3	2.5	2.6	0.38
13. Club Housekeeper	3.6	3.5	2.6	2.7	0.44
14. Cook	3.1	3.2	2.4	2.8	0.60
15. Dancing Teacher	5.6	6.1	3.3	3.1	0.33
16. Dentist	2.7	3.1	2.1	2.5	0.45
17. Designer	8.1	8.4	3.3	2.5	0.51
18. Detective	6.1	6.2	3.2	3.1	0.56
19. Draftsman	4.9	4.8	2.3	2.2	0.41
20. Dressmaker	4.4	4.3	2.7	3.5	0.40
21. Editorial Writer	6.7	6.6	2.8	2.8	0.54
22. Elevator Operator	2.3	2.3	2.1	2.0	0.44
23. Employment Clerk	2.9	3.7	3.4	2.5	0.60
24. Factory Worker	1.6	1.5	1.4	1.5	0.28
25. Farmer	4.0	4.3	3.3	3.3	0.55
26. File Clerk	3.3	2.1	2.4	2.9	0.84
27. Gardener	4.7	5.3	3.2	3.2	0.43
28. Garment Worker	2.6	2.3	2.1	2.1	0 25
29. General Office Clerk	3.7	3.5	2.2	2.3	0.30
30. Governess	5.6	5.7	3.2	3.0	0.53
31. Hired Girl	2.1	1.8	2.0	1.7	0.38
32. Insurance Salesman	3.6	3.6	2.4	2.5	0.51
33. Interior Decorator	8.8	8.8	2.3	2.0	0 85
34. Interpreter	6.4	7.1	3.0	3.1	0.58
35. Laundry Worker	1.5	1.6	1.2	1.5	0.44
36. Lawyer	6.0	6.4	3.1	3.0	0.54
37. Librarian	7.3	6.8	2.6	2.7	0.41
38. Magazine Writer	7.6	7.5	2.6	2.9	0.63

TABLE 2—*Continued*

OCCUPATION	M'25	M'26	S D'25	S D'26	Correlation
39. Mechanical Dentist	3.0	2.8	2.3	2.5	0.36
40. Milliner	5.3	5.0	2.9	3.1	0.57
41. Missionary	4.8	4.0	2.8	3.2	0.65
42. Musician	8.2	8.5	2.9	3.0	0.72
43. Newspaper Reporter	6.8	6.4	2.8	2.8	0.59
44. Novelist	7.7	8.1	3.1	3.0	0.66
45. Nurse	5.9	6.0	1.9	1.8	0.11
46. Pharmacist	4.4	4.4	2.7	3.1	0.56
47. Photographer	5.2	5.5	2.6	2.8	0.66
48. Physician	5.3	6.0	3.5	3.5	0.86
49. Poet	6.1	6.9	3.1	3.3	0.61
50. Printer	4.4	4.2	2.3	2.4	0.41
51. Private Secretary Business	6.0	5.9	2.6	3.2	0.46
52. Private Secretary, Social	7.0	6.9	2.9	3.0	0.67
53. Public Stenographer	3.7	3.2	2.2	2.5	0.43
54. Retail Merchant	4.0	4.2	2.8	2.7	0.36
55. Retail Sales Clerk	3.7	3.5	2.3	2.5	0.57
56. Scientific Research	6.5	6.7	3.1	3.3	0.61
57. Singer	7.2	7.5	3.2	3.1	0.60
58. Social Worker	7.5	7.4	2.6	3.0	0.49
59. Statistician	4.5	3.9	4.3	2.4	0.24
60. Stenographer	4.0	3.6	2.5	2.6	0.61
61. Teacher	6.4	5.9	3.2	3.2	0.69
62. Telephone Operator	3.1	2.7	2.4	2.4	0.60
63. Ticket Seller, Theatre	2.3	1.9	2.1	1.9	0.61
64. Typist	3.6	3.1	2.7	2.6	0.49
65. Usher	3.2	2.8	2.5	2.6	0.62
66. Waitress	2.6	2.1	2.3	2.0	0.65
67. Window Trimmer	5.5	5.1	3.5	3.3	0.45

a student who has marked *Teacher* as being "disliked very much" we can again see that it is very unusual because it is more than one standard deviation below the mean. In addition to the evidence about isolated

choices such as these, there almost always appear constellations of choices which give definite information about the occupational interests of the students. The blanks were never evaluated at Mills to show mechanical mindedness and social mindedness, which is the use for which they were originally intended.

CHANGE OF INTERESTS

In the first year it was impossible to evaluate the blanks for all students in college. Incidentally, it was also impossible the second year. But the question at once arose as to whether the interests change from year to year. This seemed to be the most imperative study, and therefore in 1926–1927 a second blank was filled out by all sophomores who had filled blanks the previous year.[2] There were 105 of these remaining out of the 191. Evidence was then available both for the reliability of the blanks shown by two choices of the same students, and for the comparative choice of the freshman group (1925) with the sophomore group (1926). The results of the comparative choices are shown in table 2.

A comparison of table 1 and the second and fourth columns of table 2 makes it evident that the means and standard deviations of the choices of the 105 freshmen in 1925 are practically the same as those of the original freshman norms of 191 cases of 1925. In both years, for instance, *Interior Decorator* and *Designer* are the highest choices and *Factory Worker* and *Laundry Worker* are the lowest choices. The standard deviations are also practically identical. Differences in means in terms of the sigma of the differences were worked out in a few cases and found to be statistically significant. The correlation, also, between the mean choices for the 105 students in the freshmen and sophomore years shown in table 2, is almost 1.00. Therefore, so far as the total group is concerned, it seems to make no difference whether we use a freshman norm or a sophomore norm. The same study, of course, should be worked out for all classes in college.

But when the correlation between the choice of any single individual in her freshman year and her sophomore year is computed for the 105 students, the sixty-seven relationships tell a different story. In the last column in table 2, where the correlations stated are computed with the freshman choice and the sophomore choice of each individual as the variables, are shown results varying from that of −0.11 for *Nurse* to +0.86 for *Physician*, with the middle 50 per cent of the correlations ranging from +0.40 to +0.61. These were calculated by the Pearson formula. The greatest likes and the greatest dislikes are not necessarily the most highly correlated. This study makes it apparent that advice should be given on the basis of choices recently made, at least in the case of freshmen and sophomores.

[2] These blanks were evaluated with the aid of Harriett Elizabeth Mykrantz, senior.

(*Manuscript received December 9, 1927.*)

Graded Series of Form Boards

By Grace H. Kent and David Shakow, *New York*

In the evolution of tests of certain essential aspects of intelligence, the form board has won a secure place. The task of perfecting this tool of measurement is, however, one that demands both insight and patience. The Editor recommends for the consideration of research workers, the particular models here described, and bespeaks for the authors' coöperation in establishing norms of performance.

The authors describe an improved design of the well-known Kent form boards. Its advantages lie in the high premium placed upon orderly procedure as opposed to trial and error, and the arrangement of sequence of tasks for study of practice effects. The specific problem of each task is presented five times, and the repetition furnishes a check on the part that chance may play. Each task is self-corrective. No two blocks are interchangeable, nor are any two so nearly alike as to mislead the subject who gives careful attention to their differences. Norms are not yet available.

SINCE the publication of The Worcester Formboard Series[1] the test has been in constant use and the efforts to perfect the design have been continued. Observations upon several hundred subjects have indicated that a new design should be substituted.

The principal reason for discarding the Worcester Series is as follows. The test is not a puzzle, and was not intended as such. It is an essential feature that each task be self-corrective, so that any error of placement may be immediately recognized as an error. This end was not quite achieved in the Worcester Series. Two blocks in that series are so nearly alike that the smaller may be substituted for the larger, and the subject who makes this error by chance is apt to be seriously confused by it. This defect in the design was noticed in 1925,[2] but it required two years' further effort to find a way of correcting it without introducing other errors.

Observations upon full-grown adolescent boys have served also to show the limitations of a form board intended primarily for children. The portable board of brief-case size has been found to be of inestimable value for the use of the traveling clinic, but it does not meet the needs of the

[1] D. Shakow and G. H. Kent. *The Worcester Formboard Series.* The Pedagogical Seminary and Journal of Genetic Psychology, 1925, Vol. 32, pp. 599–611.

[2] *Id.*, see note, page 602.

laboratory, the vocational clinic, or the industrial plant. There is a distinctive place for a board fitted with blocks large enough to be handled comfortably by a man, as well as for the compact traveling outfit. It is impossible to effect a compromise without impairing the value of the five recesses, each of which is fitted with seven complete sets of blocks a little thicker than the depth of the recess. The outline of the frame is shown in figure 1, the recesses being numbered from one to five in the order of their length. Taken in serial order, they increase in width and decrease in

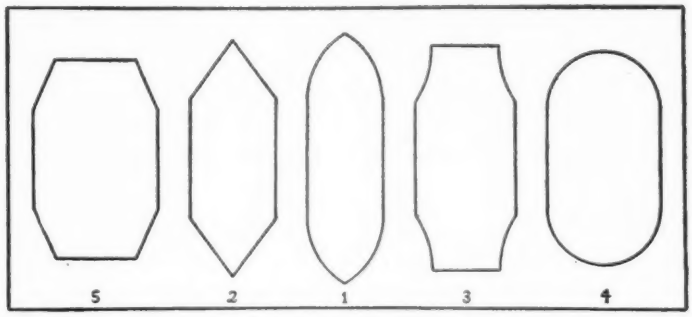

FIG. 1. FRAME OF INDUSTRIAL MODEL

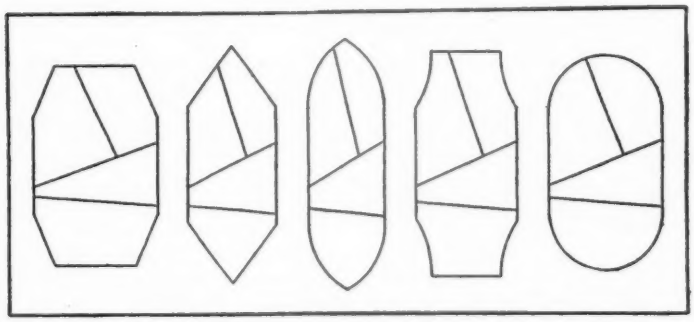

FIG. 2. SIXTH TASK, 4D

test both for industrial and clinical purposes. In order to meet both needs, the new design will be offered in two models which differ in size but not in principle.

INDUSTRIAL MODEL

The industrial model consists of a wooden frame 22 by 10 inches, having

length by 1.0 cm. All the recesses are quadrilaterally symmetrical, and they are intended to be approximately equal in distinctiveness of outline.

The seven sets of blocks furnish eight tasks, in each of which the contents of all five recesses are divided in exactly the same way. Thus each task involves one specific problem

which is presented five times, as shown in figure 2.

Figure 3 shows a single sample from each of the eight regular tasks. Only two sets of blocks are needed for the last three tasks, and these blocks may be so combined as to furnish two additional tasks to be used as supplementary tests. For convenience in recording, the eight tasks are given names which are easily learned, the numeral indicating the number of blocks for each recess, and the letter S or D indicating straight or diagonal lines of division.

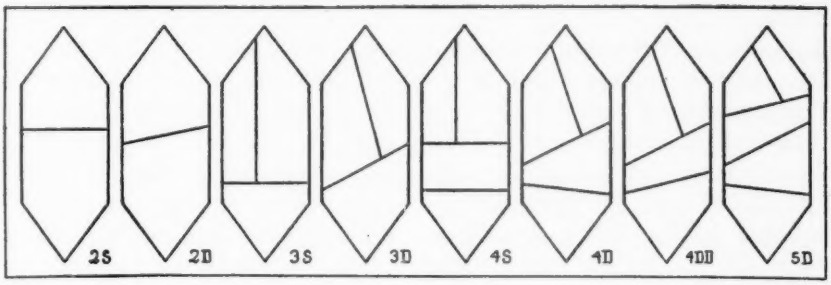

FIG. 3. SAMPLE FROM EACH OF THE EIGHT TASKS

CLINICAL MODEL

The frame of the clinical model, shown in figure 4, is twelve inches in length. The seven sets of blocks are similar to those of the industrial model, and the eight tasks bear the same names. The clinical model differs slightly from the larger model in the proportions of the depressions, as well as in their arrangement. Compactness is the essential feature of this model. Short of making the tasks less self-corrective, it seemed advisable to reduce the size in every possible way. The first two boards of the Worcester series, each of which has a single block for each recess, may be used with young children as an introduction to the clinical model. The rest of the Worcester series is now to be considered obsolete.[3]

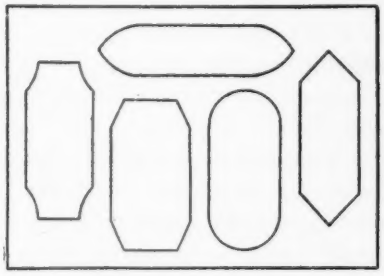

FIG. 4. FRAME OF CLINICAL MODEL

INSTRUCTIONS FOR PRESENTATION

Examiner and subject are seated at opposite sides of a table about three feet wide, with the frame in front of the subject. Examiner places a tray containing the blocks 2S at subject's

[3] For illustrations of the first two boards of the series, see *A Manual of Individual Tests and Testing*, Bronner, Healy, Lowe, and Shimberg, page 174. The substitution of the new series has the approval of Doctors Healy and Bronner.

right, saying in a conversational tone, "Let's see how quickly you can fit these blocks into their places, two blocks for each hole." The time is measured by a stop-watch, and recorded in seconds. The blocks are then returned to their tray, leaving the frame ready for the next task. Each time the subject is informed how many blocks there are for each recess, but no mention is made of speed after the first task.

The tasks are presented in regular order until the subject gives up or runs over the time limit. Failure in any diagonal task indicates that he has reached his limit in the diagonal series, but he should still be permitted to try another task of the straight series. The subject who loses credit for 3D, by taking too much time for it, may yet be able to score on 4S. Although no credit is given for a performance that passes the time limit, the subject should be permitted to finish the task unaided if possible, or he may be given just enough assistance to enable him to complete it.

It is permissible to warn the subject early in the series that the tasks become progressively more difficult, and to explain that he is expected to require more time as the series advances. But on no account should he be permitted to know how many tasks the series includes, nor to suspect that there are any time limits. Whatever the actual quality of any subject's performance, the test should leave him with a sense of achievement rather than a sense of failure. Only the occasional subject who gives up need know that he has failed, and the one who fails by running over the time limit may reasonably infer that he has reached the natural end of the series. Without giving any false information, the examiner can usually lead him to believe that his performance is complete and satisfactory.

The blocks must be kept where the subject cannot see them, preferably in a cabinet closed on three sides. The shelves of the cabinet should be about one inch apart. For rapid handling, each set of blocks should have its own tray, and each tray its own shelf. We have not found it necessary to have a special position in the tray for each block. For the task 2D it is important to see that one block of each pair be reversed, so as to make the subject responsible for turning one of the two blocks over and not merely around. For all other tasks the blocks may be shuffled at random, after which they should be inspected to make sure that no two adjacent blocks are placed suggestively close together.

It does not appear that the effect of chance is appreciably reduced by having the blocks arranged according to a given pattern. Whatever the order in which they are presented, the subject's handling of them usually results in their disarrangement. Chance will inevitably be a factor in determining the arrangement of the blocks for the majority of subjects, and therefore it seems advisable to let it be so for all subjects.

There are many other ways of using this outfit. For example, one may find the task that is barely within reach of the subject, and have this task repeated enough times to show a learning curve. When using the test for individual study, without reference

to norms, it is permissible to adapt the method to the subject. The sequence of tasks, however, is an essential feature of the test here described, and its nature will be altered by any liberties which are taken with the order of presentation.

SCORING OF RESULTS

An adequate method of evaluating the results remains yet to be developed. For purposes of standardization it is necessary to adopt a specific method at this time, and if it cannot be adequate it should at least be convenient.

The counting of moves is not recommended as a part of the scoring system, for the following reasons: (1) Many subjects are so disconcerted by close scrutiny as to invalidate the test. (2) Some subjects move so rapidly that an accurate count is impossible. (3) Except in the simpler tasks of the series, what constitutes a "move" is largely subjective. (4) This subjective determination must be made on the instant, and cannot subsequently be verified or corrected. (5) The counting of moves occupies the examiner's attention so exclusively as to prevent him from taking notes on the subject's mode of procedure.

For the present the score is based upon the time record, not on the ground that speed is the most significant variable, but because speed can be objectively measured. In order to reduce the score to one figure, arbitrary point values have been assigned, based wholly upon numbers that can be easily remembered and easily added. The subject's final score is the sum of all his points.

In the industrial test no credit is given for the introductory tasks, 2S and 2D. These tasks are not discriminative for mature persons, and it has been observed that speed in the performance of these easy tasks does not bear any constant relation to achievement in the more difficult tasks. The values of the last three tasks are heavily weighted, and the sixth task receives special recognition because of its position in the series. The seventh and eighth tasks are intrinsically more difficult than the sixth, but are made easier by their positions. They consist in part of blocks already used.

TABLE 1

Point values for industrial model

	3S	3D	4S	4D	4DD	5D
Under 1 minute	10	15	15	80	70	70
1–2	5	10	10	70	60	60
2–3	0	5	5	60	50	50
3–4		0	0	50	40	40
4–5				40	30	30
5–7				30	0	0

SIGNIFICANCE OF THE TEST

The most distinctive feature of this series is that the factor of chance has been reduced to a negligible quantity. Each problem is presented five times, and this repetition serves as a check on such chance placements as must occur. Except in the two tasks for which no credit is given, the subject derives no considerable aid from an occasional placement made by good luck. The test places a high premium upon careful planning as opposed to trial and error performance. The subject who scores on the last three tasks is the one who takes advantage of what he has learned from his work

with the simpler tasks. Thus the series offers an opportunity for study of practice effects, without the need of requiring the subject to perform the same task repeatedly.

It affords also material for study of individual differences. Some subjects are stimulated by the increasing difficulty of the series, and others are discouraged by it. Some would work all day rather than acknowledge failure, while others are ready to give up as soon as the test presents any real difficulty. Some keep the blocks spread out where they can be seen; others retain in their hands as many blocks as they can hold. Some subjects endeavor to find the correct place for the block that has been picked up; others are obstinately determined to find the correct block for a given place, no matter how much unnecessary handling of blocks this method involves. Occasionally one finds a subject of such unerring form perception that the blocks seem to fall into their correct places without effort on his part. Occasionally a subject makes a poor showing in speed by reason of excessive deliberation, because he wastes time studying all the possibilities of the block before attempting a placement. Contrasting with this type is the subject who works with feverish haste, trying any block in any place, making the same error repeatedly, matching a block to its own place and then tossing it aside without seeing that it fits, or occasionally removing a block that has been correctly placed.

It is the process rather than the subject that can be classified according to type. Subjects do not always run true to type. The systematic worker may fall back on the trial and error method when given a task beyond his level. The erratic worker may settle down to something approaching a system when he finds that he is losing time by his random work. What the examiner can learn about the subject by studying his development of procedure is frequently more significant than any numerical findings. It is especially instructive to note the moment at which the subject grasps some principle, as for example the reversal of a diagonal block, and then to observe what use he makes of it in subsequent tasks.

It has been observed that individual variations run high among subjects of any class. High ratings have been obtained from subjects believed to be of subnormal mentality, and low ratings from persons of known superior ability.

STANDARDIZATION

The two models are offered for standardization, each independently. It is desirable that the large model be standardized for men and boys, and the small one for women and children. The norms of one set will not be applicable to the other set.

The test can be used while it is being standardized, and the material for norms can be obtained by collecting records that are taken primarily for study of individuals. Blank forms will be furnished to anyone who will assist with this project. The collaboration of other students is solicited, both in collecting data and in formulating a satisfactory method of evaluating results.

(*Manuscript received April 3, 1928.*)

Extra-Curriculum Activities and Academic Work

By Albert Beecher Crawford, *Yale University*

One of the first fruits of a recent personnel survey at Yale University, the complete report of which will be published later this year,[1] *is presented in this brief article by Dr. Crawford. Judging by the scope of the accumulated data, this investigation will be an outstanding contribution to college personnel studies.*

As part of an extensive personnel investigation at Yale University, lists were compiled of students who were actually competing for or already had achieved a definite degree of recognition in each of the various organized extra-curriculum activities, and of students not so engaged. On the basis of Bureau of Appointments records, those in each group who were earning their own way were segregated from non-self-supporting students, making four divisions in all of the undergraduate body.

(1) In activities and self-supporting
(2) In activities and not self-supporting
(3) Not in activities but self-supporting
(4) Not in activities and not self-supporting

Both in scholastic averages and in the correlations between grades and mental ratings, the students in activities make a significantly superior showing. Those neither in activities nor self-supporting make the lowest records of all.

Further detailed analysis of the different specific activities shows the students engaged in non-athletic extra-curriculum pursuits to outrank the athletes somewhat, both in mental ratings and in grades. The athletes, however, have the higher correlation between these two measures.

The article suggests that student activities may provide a certain degree of indirect scholastic motivation, due to students' desire to maintain at least sufficiently high grades to escape disqualification from such activities. The high academic standard of eligibility requirements at Yale make this factor particularly influential in the case of athletes.

The author concludes that legislation tending arbitrarily to curb extra-curriculum activities would prove harmful, unless more ideal intellectual and curricular means of stimulating students are first developed.

[1] A comprehensive analysis will be published this fall in book form by the Yale University Press, under the title *Incentives to Study*.

THE question of motivation of college students has many angles. Incentives to study may in some cases be relatively direct, as when the intellectual curiosity of the student has been sufficiently aroused so that he is athirst for knowledge. Such a situation with undergraduates is as rare as it is ideal. Other incentives may be secondary,—that is, a student, not primarily motivated by desire for learning, may nevertheless wish to do at least reasonably well in his studies because the realization of some other aim is partly conditional upon his classroom record.

SCHOLARSHIP AID AS A MOTIVATING INFLUENCE

The effect of scholarship aid as a specific motivating influence upon a substantial number of students at Yale University has previously been analyzed by the present writer.[2] This study showed that the grades of applicants for scholarships were distinctly higher and yielded a better correlation with test ratings than those of classmates who were not earning part of their own expenses and consequently were not forced to consider the economic advantages of securing high enough grades to qualify for financial assistance.

The mean grades of scholarship applicants exceeded by about two-thirds sigma the averages of non-self-supporting students exactly comparable to the former on the basis of mental test ratings and preparation. Furthermore, the correlation between mental ratings and Freshman grades was fifteen points higher for scholarship applicants than for the non-self-supporting students. Mental ratings thus seem to be of particular significance in predicting the possibility of students carrying the burden of self-support and still maintaining satisfactory classroom work.

There is a strong recent confirmation of our claim as to the efficacy of this special motivation factor. In 1926 the minimum scholastic requirement qualifying a student to receive tuition aid was raised from an average of 70 to one of 75, the individual stipend being at the same time considerably increased. The scholastic average of scholarship recipients in the four undergraduate classes rose in the following year from around 76 (as reported in the 1925 study cited above) to 79, an increase of 3 points, or nearly 0.5σ. There was at that time no change in the marks of all other students. Such a quick jump in the average grades of some 500 men is extremely significant and appears further to confirm the conclusions outlined above.

Financial aid, then, is one medium by which scholastic motivation may be specifically induced. Let us consider a related case of secondary or conditioned motivation,—the extra-curriculum activity.* Many students, and not a few teachers, frankly feel that grades in study alone are not by any means a satisfactory criterion of the degree to which any individual realizes and profits by the opportunities of the college course. Certainly it must be recognized that many other

[2] A. B. Crawford. *Effect of Scholarships: A Study in Motivation.* The Journal of Personnel Research, Vol. IV, Nos. 9 and 10, January–February, 1926. Pp. 391–404.

phases of American college life enter too largely into the development of students for their value and influence not to be given serious thought in this connection. All too frequently the extent to which students measure up to their apparent possibilities is judged chiefly or even wholly by their classroom records. Not to consider the very real effort put forth in student activities,—whatever one's attitude towards the wisdom of such effort or the really educational value of such activities may be,—is simply to ignore factors which do have a very real bearing on the case.

SELECTION OF SUBJECTS

A recent study compares the academic records of Yale students in activities with those of men not so engaged. As a basis for this investigation, lists were first prepared of participants in such pursuits. All possible sources of information were utilized in compiling the activity lists, in order to make them as complete and reliable as possible. While it is not certain that these included every case of active extra-curriculum participation, a check-up through the records of the organizations themselves, class-books, etc., has reduced the probability of significant errors or omissions to a minimum.

Furthermore, it is only reasonable to suppose, in view of the differences observed in table 1, that any omissions from the group of extra-curriculum participants would tend to reduce and not to exaggerate the observed variations.

The criterion for inclusion in the group of extra-curriculum participants was either some definite achievement or a certain amount of consistent effort on the part of those competing for such recognition.

The individual who had made only sporadic and half-hearted attempts "to go out" for them, and who abandoned these pursuits readily, has accordingly not been included as a participant in student activities. The extra-curriculum activities have also been limited to those which are definitely recognized and organized, thus eliminating purely social or ephemeral interests.

Our first analysis of the student activity groups considers all the groups together. A further differentiation is subsequently presented of the records of students in certain of the more important specific activities.

Average grades and mental test ratings are of course available for almost all students, whether or not they are engaged in such activities. We also have, from the records of the Bureau of Appointments, quite complete data regarding men earning their own expenses, so that it is possible, furthermore, to separate out the latter from both the activity and non-activity groups. Thus we are enabled to utilize the self-supporting students as, in a sense, a control group, within the basis of differentiation now being discussed.

ANALYSIS OF RESULTS

Table 1 presents a comparison between students in extra-curriculum activities and those not so engaged, with the self-support element singled out from each group. As this is based on Yale students solely, its implica-

tions for other institutions would of course depend in part on student attitudes in general, and in part upon the similarity of eligibility regulations, both for athletics and for other organized activities. A more searching analysis on the basis of degree of extra-curriculum achievement is projected; the present study does not discriminate between the really "big men" the two. The difference in test ratings amounts to only 0.07 sigma and that in grades to about 0.30 sigma. The differences of note are all more than ten times the respective probable errors and may therefore be regarded as significant.

There is, however, more to be observed if we examine separately the self-supporting and non-self-supporting

TABLE 1

Students of four Yale classes in extra-curriculum activities, compared scholastically with those in same classes not so engaged

	NUMBER OF CASES	AVERAGE CLASS-ROOM GRADES FOR TOTAL WORK TO DATE	PE_m	MENTAL TEST RATING $\frac{\bar{x}}{\sigma}$	CORRELATION BETWEEN MENTAL RATINGS AND GRADES	PE_r
All students in extra-curriculum activities	1,244	76.4	0.1	+0.04	.46	0.01
All students not in extra-curriculum activities	1,399	74.6	0.1	−0.03	.30	0.02
Self-supporting students in activities	407	77.1	0.2	+0.06	.49	0.02
Self-supporting students not in activities	403	76.8	0.2	0.00	.33	0.02
Non-self-supporting students in activities	835	76.0	0.1	+0.02	.44	0.02
Non-self-supporting students not in activities	996	74.0	0.1	−0.05	.29	0.02
All students in activities or self-supporting or both	1,647	76.5	0.1	+0.03	.43	0.01
Students neither in activities nor self-supporting	996	74.0	0.1	−0.05	.29	0.02
Total for whom complete data are available	2,643	75.4	0.1	0.00	.41	0.01

The standard deviations of these grade distributions range between 6.2 and 6.8
All of the correlation coefficients are positive

of the campus and those whose more moderate participation in activities has been just sufficient for their inclusion in the extra-curriculum group.

We find (table 1), comparing first all in extra-curriculum activities with all not in such activities, that the former are slightly superior in mental ratings, more so in classroom grades and still more in correlation between students. We find, for instance, that men who are working their way through college make about the same grades whether they are in other extra-curriculum activites or not. The correlation is distinctly higher for those in activities, but the other differences within this self-supporting group are relatively small. If we note those not self-supporting similarly differentiated,

however, we find very considerable differences in grades as well as in correlations. Of the total group (1399) not in extra-curriculum activities, a considerable proportion are not so engaged because they are too much occupied in working their way. Are the rest of this group, who are not deterred from participation in activities by reason of self-support, staying out of such pursuits in order to devote the time to study? Some no doubt are; but the majority appear to be of different calibre; for if we observe specifically the substantial number who are *neither in activities nor self-supporting* we find that these are the poorest students of all. In other words, some of those not in activities are in that category because they are workers (either due to study or to self-support or both) and others apparently because they are quite the reverse.

If we combine all those who are in extra-curriculum activities or in self-support or in both,—that is, all the men who we know are carrying some outside effort in addition to their studies,—and compare them with the remainder, who, according to time chart or questionnaire replies have no activity which would interfere with study, we find a still greater difference in grades. Those who are doing nothing on the side are two and a half points, (about 0.4 of the S.D. of the grade distribution) below their more active fellows in scholastic averages. True, they are also about 0.1 of a sigma lower in mental test ratings, so that they are slightly an inferior group to begin with, but the correlations indicate that it is *lack of application rather than lack of ability* which accounts for the contrast in scholastic effectiveness.

When we further consider that the group neither in activities nor in self-support includes a certain number of so-called "grinds," who raise the average for this group, we have an excellent example of the tendency in a study of this nature for conflicting factors to reduce observed differences between groups of considerable size.

It would appear from table 1, then, that extra-curriculum activities, instead of being detrimental to classroom work, may actually be favorably related to it. Let us examine this situation further.

In table 2, records are separately presented for students associated to any important degree with each of the respective activities. The net total classified as engaged in athletics is 1063, and in non-athletic activities, 392. Of the remainder classified as not engaged in activities, 1387, a substantial number may have participated sporadically in such activities during previous years, but failed to win insignia or to continue active competition.

The last two columns in table 2 give the average time reported as spent in study and in the specific activities for those who returned time chart records in the Personnel Survey of April, 1926. Students prominent in activities coöperated in much larger proportion in this Survey than did those not so engaged, some two-thirds of the extra-curriculum group replying, while less than half of those not in activities returned time charts. Time spent in activities does not include that devoted to self-support employment.

The figures in table 2 show the relatively high correlation between grades and mental test ratings for all of the activity groups, with the exception of *hockey*. It is probable that the low correlation in this instance may be due to the small number out for this particular sport and to peculiar local difficulties connected with its pursuit at the time. Students in both the athletic and non-athletic activity groups excel those not engaged in such activities in average grades, in mental test ratings, and in correlation between the two. Within the entire activity group, however, students engaged in non-athletic activities somewhat excel those in sports.

TABLE 2

Students in extra-curriculum activities compared with those not so engaged

ACTIVITIES	NUMBER OF CASES	SCHOLASTIC AVERAGE TO DATE	PE_m	MENTAL TEST RATING $\frac{x}{\sigma}$	CORRELATION BETWEEN MENTAL RATING AND GRADES	PE_r	NUMBER RETURNING TIME CHARTS	MEAN TIME REPORTED SPENT IN STUDY (PER WEEK)	MEAN TIME REPORTED SPENT IN EXTRA-CURRICULUM ACTIVITIES (PER WEEK)
Football	175	73.8	0.3	−0.22	.66	0.03	102	19.7	8.2
Baseball	101	73.9	0.4	−0.28	.54	0.04	48	20.1	9.3
Crew	217	76.6	0.3	+0.29	.52	0.03	153	19.4	7.4
Track	221	75.6	0.3	−0.12	.49	0.03	117	21.0	9.2
Hockey	64	76.5	0.6	−0.19	.10	0.08	31	19.8	7.8
Five major sports	547	75.4	0.1	−0.04	.55	0.02	451	20.0	8.4
Minor sports	808	76.3	0.1	−0.06	.42	0.02	402	20.5	8.3
All athletics	1,063	75.9	0.1	−0.10	.48	0.01	853	20.2	8.4
Publication Boards	193	76.9	0.3	+0.32	.41	0.04	142	18.5	12.5
Dramatic, Debating, Musical Clubs, etc.	252	77.5	0.3	+0.25	.51	0.03	148	21.0	12.0
All non-athletic activities (net total)	392	77.2	0.2	+0.28	.45	0.02	290	20.1	11.5
All students engaged in extra-curriculum activities (net total)	1,244	76.4	0.1	0.04	.48	0.02	884	20.2	9.9
All students not engaged in such activities	1,399	74.6	0.1	−0.03	.35	0.01	402	21.2	—
Entire undergraduate student body for whom data available	2,643	75.4	0.1	0.00	.41	0.01	—	—	—

The high mental test rating of the non-athletic activity group is striking, and equalled only by the crew squad among the sport participants. The major sports in general, and particularly football, show the highest corre-

lations between mental ratings and in classroom grades. The high scholastic eligibility requirements for participation in athletics at Yale no doubt are especially influential in this connection.

It will be noted that non-athletic activities seem to take more time, on the average, than do sports, but that the time spent in study by these two groups is practically identical. Students *not* in activities evidently spend but little more time in study than do those actively interested in extra-curriculum pursuits. That this is by no means wholly due to self-support effort is clear from table 1. At any college which has reasonably rigid eligibility requirements, a certain class of students especially interested in athletics or other activities, through their desire to remain eligible to participate therein, are anxious to do well enough in studies to keep off warning and disqualification. Whether such students are desirable is another question,—probably some are and some are not; but at least their activities provide *some* definite scholastic incentive up to a certain level. That eligibility level may of course represent an actually high level of attainment for no small number of them.

Where this type of motivation fails to act as effectively is with the superior student who is content easily to get his C plus average and devote the rest of his energy to other forms of effort. The important question here is, whether or not many of these same superior students would devote the extra effort to study if their student activities were curbed. A good many potentially superior students in the non-activity group certainly do not distinguish themselves academically. They simply divert themselves in other and often less profitable ways.

Those who are *not* self-supporting and still are *not* in activities, do distinctly the poorest scholastic work of all the groups studied. Nor can this apparently be explained on the ground that they are proportionately inferior potentially. The evidence presented suggests lower motivation, rather than lack of ability, as the real cause of their academic deficiency.

We may perhaps be permitted the following speculative explanation, *viz.:* that the active, ambitious student gets into the habit of doing all his jobs pretty effectively. For one thing, he organizes his time and learns to concentrate on whatever task he undertakes to a greater extent than does his fellow, who is more interested in simply having what he calls a good time. It is this sort of intellectual parasite who is a bane educationally,—not the one who is a leader in student activities. The men who took the trouble to coöperate most fully and intelligently in our Student Survey were noticeably those who had most to do in activities, while these men at the same time stood higher than average in their studies.

The student, after all, may be much like the older executive in this,—that once he gets the habit of activity in one direction he carries it with him into other lines. Psychologically this is merely a theory of transfer by a conditioning process of activity primarily stimulated in one direction toward some specific goal, and later

carried over into other activities for which, originally, direct motivation was lacking. Whether this theory is scientifically defensible is, of course, questionable. The classical transfer of training experiments, however, do not, we feel, offer any pertinent or conclusive refutation thereof, because we are here dealing with a transfer, not of narrow skills, but rather of high-level attitudes, built up probably by an elaborate conditioned process.

President Hadley once commented on how much easier teaching would be if we could only elevate study to the level of extra-curriculum activity. This characteristic epigram strikes profoundly at what the writer feels is the root of our present-day teaching problem. Just that is what our course of study needs. In an age in which colleges are teaching us to be curious and skeptical, reasons for studying are no longer to be taken on faith. We encourage students to ask the why and wherefore of events; we teach them to be guided by logical inferences from observed phenomena; we caution them to beware of experimental errors and of conclusions based on hearsay; and then we berate them for needing to be shown *why* after all they should take a more lively interest in classical civilization or the Mind-Body problem, than in the ability to kick a field goal from the forty yard line.

We are not attempting here to applaud the present over-emphasis on such activities, but simply to point out that a student's incentive in such directions is readily aroused because there he can *see his objectives;* where he is going in the classroom, or what the whole curricular picture means, too frequently is but "seen through a glass darkly." In fact we must recognize the influence of such specific motivation factors upon American college students whether we like it or not. Of more fundamental importance to education no doubt are the higher forms of motivation which we wish to inculcate in students, and whose relation to certain other factors is also at present being investigated.

SUMMARY

To summarize, we have attempted first to demonstrate that the influence of student activities and of self-support must be recognized in personnel studies, and that failure to do so may prove an important source of error; and second, that undergraduates participating in such activities are better students, and measure up to their scholastic potentialities to a higher degree, than do those who are not engaged in any form of outside effort. This, we suggest, is largely because in our present educational situation higher and more ideal forms of motivation are lacking,—and in their absence the secondary types of incentive may be better than none.

This would seem to justify a warning not lightly to legislate against such sources of motivation as we have, however we may regard them educationally,—at least until we have successfully substituted better ones. What goal are we making sufficiently clear to our college student for him to be impelled by a higher form of urge than those we have just discussed? Student activities have evolved as

an outlet for the energy and ambition of those to whom the present purposeless, disoriented course of study frequently offers, of itself, an entirely inadequate appeal. To curb the activities without correcting the evil from which they sprang—curricular sterility—would but drive undergraduates to find other means of release.

(*Manuscript received April 17, 1928.*)

Rating Legislators

By J. D. Hackett, *New York*

Many of us who have identified ourselves with modern trends in vocational psychology have been led to believe that we are developing new tools and techniques, when as a matter of fact our chief contribution appears to be the statistical one. Here we have an account of a rating scale,—differing but slightly from many modern ones,—in use almost 150 years ago for rating Irish legislators. Doubtless investigation would uncover even more venerable specimens than this.

EVALUATION of the characteristics of persons in various occupations has been, perhaps, one of the most popular pursuits in personnel management in the last few years. Much effort has been expended, not only in determining what characteristics are demanded for a given occupation, but also in equating individuals with these requirements.

Clerks, foremen, minor executives, and skilled and unskilled workers have been subjected recently to such schemes of measurement, and at every presidential election some consideration is given to presidential qualifications, although informally. So far as is known no effort has as yet been made to determine the qualifications of our legislators on any systematic basis; yet every person who votes, unless he is a partisan, has a peculiarly difficult problem of evaluation.

The determination and rating of the characteristics of legislators is at least 150 years old as shown by an extract from the Dublin Evening Post of January 24, 1784. In this journal, which was the champion of the Volunteers' demand for the reform of the Irish Parliament, the principal legislators of the period were "rated" by a method by no means inferior to some of those plans in use in industry today. The article showed a "Scale of Parliamentary Merits" with 20 marks as the "ultimate of perfection," and each legislator was rated for independence, general knowledge, influence, honesty and other qualifications of importance in legislative activity, as shown in table 1.

The scale had one radical fault,—not, however, unknown in our time. It failed to "weight" the qualifications according to their relative value, just as some employers perceive no inequality between one absence and one lateness to which are given the same value, although there is a considerable difference in the amount of time lost in each case. Independence and

general knowledge are of far more importance in a legislator than temper and grace.

Lapse of time makes it possible to compare the verdict of history with this contemporary rating scheme, on the criterion of services rendered to Ireland. In point of accomplishment, Grattan far exceeded the achievement of the others; Flood, perhaps second, and Curran, third. These three helped to secure the legislative independence of Ireland in 1782 and fought against its extinction in 1801. Brownlow, Gardiner and Foster, who were all rated high, have passed into limbo and their services, if any, have long since been forgotten. Toler, scoring the lowest in 1784, is by general opinion today, considered the least worthy.

TABLE 1

Scale of parliamentary merits (Dublin Evening Post, January 24, 1784)

NAME	INDEPENDENCE	GENERAL KNOWLEDGE	POLITICAL KNOWLEDGE	ARGUMENT	LANGUAGE	TEMPER	GRACE	INFLUENCE	HONESTY	TOTAL
Foster	0	20	20	15	15	20	12	10	15	127
Grattan	20	10	14	14	12	2	0	2	13	87
Curran	0	3	8	8	11	3	3	0	9	45
Flood	18	18	20	20	20	10	16	2	15	139
Ponsonby	15	5	15	4	0	15	15	3	10	82
Toler	0	5	7	10	10	0	0	0	1	31
Fitzgibbon	20	(Did not take details)							10	82
Brownlow		(Total higher than Foster's)								Over 127
Gardiner		(Total highest of all)								151

20 marks ultimate of perfection

(*Manuscript received April 6, 1928.*)

Book Reviews

PSYKOTECKHNIKA

FIVE LECTURES IN PRINT FOR INSTRUCTORS IN INDUSTRIAL EDUCATION

By S. Hellerstein. Novaia Moskva (New Moscow), 1925

AND

PSYKOTECKHNIKA

Chapter 3 from "Organizovanny Trud" (Organized Labor), 1925

REVIEWED BY DAVID P. BODER

It is hard to establish from the first of these Russian books the educational status of the students for whom it is intended; but we learn from the text that they were supposed to have had a course in psychology of labor and another in bio-mechanics.

The first chapter is devoted to general psychological principles and their application to education. Discussing the methods of reflexology in the study of behavior, the author, contrary to a strong tendency in Soviet Russia, does not admit that reflexology could cover the whole field of psychology. The term "psykotekhnika" (psychotechnique) is used, in Stern's sense, as a synonym for applied psychology in general.

The second chapter deals with occupational selection. It is a psycho-physiological problem even when the medical part is ruled out. One of the purposes of selection is to place the individual in industry so that his work will be "free and joyful." Vocational guidance imparted to the adolescent serves not only the individual, but also the interests of industry. The basis for vocational guidance and industrial selection must be provided by professiology (scientific job analysis), and psychodiagnostics. The author enumerates the most important methods of psychological work-studies, and dwells considerably upon the method of job study by actually learning to do the job (Bernarie). Recognizing the usefulness of the introspective method, the author nevertheless warns against exaggerated confidance in one's own experience. The biographical method, first applied by D. B. Ostward, is considered more valid for the higher than for the average industrial occupations. A number of questionnaires (Lipmann, Spielrein, etc.) as actually used in Russia are given in full.

In the third chapter, "Psychological Classification of Occupations and Psychodiagnostics," the problem of motivation is stressed. The author also discusses the possibility of a "typological" classification of professions and of men. Without exaggerating the validity of the existing findings, he hopes that a study of the biomechanical differences of men would throw light upon their industrial (mainly motor) possibilities. After an extensive discussion of the test problem, a number of German and American apparatuses are described. Among the paper and pencil tests a maze problem is noteworthy. It consists

of an uninterrupted continuum of fourteen mazes of increasing difficulty, distributed in four interconnected rows.

In the fourth chapter, which deals with the problem of fatigue, the familiar distinction is made between fatigue as an objective experience, and weariness. After a discussion of the known methods of fatigue study, the findings obtained by the psychological laboratory of an industrial boarding school in Russia are quoted. They indicate that it is preferable to devote morning hours to class work, and afternoon hours to shop work. Even gymnastics in the morning has a detrimental effect upon the efficiency of classroom studies. Alternation of different kinds of work diminishes to a certain extent the necessity for rest. The author does not say whether he means the alternation of physical and mental work or simply different phases of the same category.

The fifth chapter deals with the problem of training and the difficulty of predicting the rate of learning of a given individual.

With minor exceptions, the whole book represents a masterpiece of popularization. There is no abuse of the oral method of exposition, and no attempt to sell the subject to the reader by other means than scientifically evaluated information.

The other work mentioned is a chapter on industrial psychology in a "reader for workers outside the classroom." A number of paragraphs are taken from Baumgarten, Münsterberg and others. The Russian writers are represented by Ermansky and Rys. The former contributes a paragraph from his book, "Scientific Management and Taylorism" in which he indicates that psychotechnology, in spite of its youth, suffers already from a disease,—serious but not incurable. He asserts that psychology applied in industry has been directed exclusively in favor of invested capital and against the interests of the workers.

Rys's article describes in extremely popular form the psychological laboratory of the State Department of Labor. To the end of 1924 it was equipped for work in two directions: consultative selection of workers, and psychological job analysis.

HOW TO USE YOUR MIND

By Harry D. Kitson. Philadelphia: L. B. Lippincott Company, 1926. Pp. 224. (*Third Edition, Revised*)

REVIEWED BY F. A. KINGSBURY

All who have observed the increasing output of books designed to promote efficiency in study and mental work will be interested in the appearance of the third revised edition of Professor Kitson's book. The earlier edition was one of the pioneers in this field, and it has probably been read as widely as any of this type. Although addressed to college freshmen, and arranged evidently with a view to classroom use, it would seem to be about as suitable for high-school students, or for the untrained general reader.

Most of its fifteen chapters are "straight psychology" of an orthodox variety. There are frequent reminders of the author's great admiration for William James. Were it not for its brevity (for its 200 pages of text are small and the type large), one could easily imagine it being used as a textbook in psychology for high-school students. Even the "non-psychological" chapters on *Note Taking* and *Examinations* are quite in harmony with its general tone as a book in applied psychology. One suspects that this interest must be the explanation of the author's having included the chapter on *Brain Action During Study;* for how examining pictures of brains and neurones,—or even reading about "pathways,"—can possibly help a novice understand how to study, is certainly something of a mystery.

Yet, we hasten to add, this psychological set-up does not mean abstractness or dry-

ness. As always, Professor Kitson's style is lucid, simple, and readable to a noteworthy degree. He has enriched the discussion by many illustrations, and has filled the pages with practical hints. He has inserted attractive chapter-titles, such as *First Aids to Memory, How to Become Interested in a Subject, The Plateau of Despond, Mental Second-Wind* (more William James), and the like. The paragraph headings which have been added in this new edition help one to follow easily the thread of the discourse.

The reader who has enjoyed a well-planned introductory course in psychology, or who has digested any of the numerous good books on study-efficiency, will find nothing startling in this book, although here and there he may possibly pick up a helpful hint. But for a reader, whether student or not, who has done no reading on the shbject, but would seriously like to improve his habits of mental work, this book offers probably as good an introduction as any. On its own level, it will doubtless continue to render an honorable service.

THE PSYCHOLOGY OF CHARACTER

By A. A. Roback. New York: Harcourt, Brace & Company, 1927. Pp. 595

AND

BIBLIOGRAPHY OF CHARACTER AND PERSONALITY

By A. A. Roback. Cambridge, Mass.: Sci-Art Publishers, 1927. Pp. 340. Titles 3341

REVIEWED BY HUGH HARTSHORNE

In thirty-four closely packed chapters, Dr. Roback has brought together brief reviews of nearly everything that has ever been said about character. The encyclopedic appearance of the result is only to be expected. Thoroughness of exposition and criticism are somewhat sacrificed in the interest of comprehensiveness, and in reading the book one views a wide-spread panorama rather than the details of a single scene. Some four-fifths of the volume are devoted to historical and analytical studies with only one-fifth reserved for the author's contribution.

The historical section reviews the literary contributions to characterology from the objective descriptions of types by Theophrastus to the generalizations concerning the springs of action that are embodied in the character sketches of La Rochefoucauld and La Bruyère. Four chapters are devoted to an excellent summary of the concept of temperament, which has changed so little since the days of Hippocrates and his four humors, except as each age has attempted to assign a fresh set of causes to the observed phenomena,—the latest being the hormone theory of our own period.

After noting the emergence of several basic ideas concerning character as these appear for the first time in proverbs and essays, such as compensation (Aristotle), temperance (the Talmud), the socialized will (Smile), persistence of effort (Whipple), value integration (Bacon, Macaulay), Roback hastens over the critical work of Bacon, Mill and others, to his own definition of terms in Chapter IX, where he has done real service in attempting to delimit the uses of the words personality, temperament and character. For personality he suggests, "the sum total of all our cognitive, affective, conative and even physical tendencies," including both more obvious external manifestations, such as charm, and the less obvious but more significant qualities.

For temperament he suggests, "the sum total of one's affective qualities as they impress others," and is content to make use of the four traditional categories. For character he suggests, "the volitional and inhibitory phases of behavior," recognizing that intelligence and temperament are here also involved. Ethical considerations are thus excluded from the concept of character, which is conceived as high or low just as is intelligence, but not, *in addition*, as good or bad, or strong or weak.

In parts II and III we have a somewhat loosely organized catalogue of various national "schools" such as British, French, German, and various movements, such as psychoanalysis, struktur psychology, the applications of endocrinology. The various methods are admirably summarized in a chart, which makes rather conspicuous the sharp contrast between European and American ways of approaching the study of character. Representatives of the former lean heavily on literary approaches, direct perception, philosophical insight, and psychoanalysis, whereas the more objective methods of the test, the experiment and statistical investigations are chiefly characteristic of America.

Part IV presents in some detail Dr. Roback's own view concerning character. It is here that one finds most clearly expressed his real interest in developing a genuine *psychology* of character, in discovering, that is, some fundamental psychological category or entity to which the term character may properly apply. As suggested before, he believes that this characteristically human mode of response is the power of inhibition consistently exercised so as to permit only those actions which are in harmony with some principle, standard or ideal. There is, therefore, the assumption of the presence of drives,—that is, there must be something going on or there would be nothing to inhibit. Not in these drives but in their control lies the differentia of character, according to Roback. To quote his own words, character is "an enduring psychophysical disposition to inhibit instinctive impulses in accordance with a regulative principle." Consequently degrees of character or varieties of value in character are to be found, not in the comparative strength of the different instincts or tendencies, such as the altruistic tendency, but in the activity of such regulative principles as truth and justice. Inhibition is properly conceived as a positive force, not a mere negation. This relation between drives and inhibition makes possible a rather neat chart which sets over against a list of instinctive drives an ascending series of regulating principles, varying from physical and legal at the bottom to ethico-logical at the top,—the latter conceived as reaching its highest expression through vision.

It is not made perfectly clear just how the regulative principles operate to inhibit a drive, but appeal is made to a "consistency urge" which manifests itself in the desire to employ a single standard of action. Translated into a maxim (which ought not to be necessary if it is a natural human urge) this means: "Inhibit your instinctive tendency in accordance with the principle of consistency as you would wish it observed from the angle of an impartial observer."

That Roback is not quite sure of the strength of this urge, or perhaps of its adequacy as a criterion of character, is suggested by his statement that ". . . . . where only one course is open, such as in saving either one's own life or another's, one's own interests come first . . . . although true nobility of character might prompt one to self-sacrifice on certain rare occasions."

This apparent inconsistency in the theory of consistency is augmented by the statement that women are lacking in the consistency urge,—and presumably, therefore, in character.

Roback's emphasis upon the view that character is not a sum of characteristics or virtues but is rather a type of inner organization, is very much to the point. In confining his analysis to a description of the relation of drives to principles, without regard to concrete social situations within which drives operate and from which principles emerge, we are left with somewhat of an abstraction. Several interesting leads are begun, such as the reference to an "arena of action" and "an impartial

observer," which might well have been followed up and which probably would have been given greater weight had any consideration been given to the extremely valuable contributions of George A. Coe, whose point of view is very similar to Roback's but is rounded out in the direction of a more realistic approach to behavior, a more rigorous consistency, and a more complete analysis of the process of self-direction and improvement.

Students of character are placed under permanent obligation to Dr. Roback for his *Bibliography of Character and Personality*, which was prepared to accompany the *Psychology of Character*. It is a remarkable collection of over 3300 titles.

Unfortunately the alphabetizing was apparently done on three occasions so that the reader must look in three lists to be sure to cover the ground, but this limitation can be easily forgiven by those who have ever attempted to prepare an up-to-date bibliography. Somewhat more serious is the omission of titles one might properly expect to find in such a list. George A. Coe, already mentioned, is represented by only a couple of titles in spite of his pioneer work in this field. Other omissions will be noticed by the reader as well as the inclusion of a considerable number of rather poorly selected practical and religious books more or less remotely related to the problem. In other words, a somewhat less comprehensive and somewhat more critical selection of titles would have added to the usefulness of what is already an invaluable collection of references. The list is carefully classified and there are many helpful bibliographical notes. The European titles alone would make the bibliography indispensable.

THE INVESTIGATION OF BUSINESS PROBLEMS

By J. Eigelberner. Chicago: A. W. Shaw Company, 1926. Pp. 335

Reviewed by David R. Craig

Here is a book which guides the reader through the five steps of investigational procedure: analyzing the problem, collecting the facts, classifying and tabulating the facts, forming conclusions, and establishing the conclusions.

For the beginner in research work it makes an excellent treatise. He can use it as a compass for finding his way about in an uncharted chaos of data, but will be wise if he cuts into the data first and the book second. For without a specific research problem in mind the book might easily seem unreal. This is not the author's fault, except for daring to write about method at all.

The experienced investigator, too, can use this book. For him it may serve as reference, and as a cursory review of his practices and procedures. He may be able to find shortcuts of which he was unaware, or he may find that he is already short-cutting too extensively.

Where Mr. Eigelberner has written of the technical aspects of investigation he has been sound and scholarly and interesting. Particularly good are the chapters on interviewing and on reports. But when he discusses the personal qualifications of investigators and the nature of thinking processes, it is as if he were digressing. His material is of a different order.

The homilies on personality read like this: "Habits of accurate observation and logical reasoning from observation, should be cultivated. Prejudice or sentiment should be carefully excluded." All this is true, but it is like asking the investigator to honor his father and mother.

And in the chapters on thinking the laws of inductive reasoning as set forth by John Stuart Mill (to take only one sample) seem

not to belong to the rest of the work. There are probably few research workers who make any conscious use of these laws, and still less who do not make unremitting use of them unawares. Perhaps it is wise to have labels for everything we do. Yet if all researchers went through these processes deliberately, their self-consciousness might easily retard the solution of their problems.

In spite of all this, Mr. Eigelberner has faced the difficult task of generalizing a statement of method and has done it well. The investigation of business problems can proceed with surer footing and with greater hope of solving them as a result of his work.

LABOR RELATIONS: A STUDY IN THE PROCTER AND GAMBLE COMPANY

By Herbert Feis. New York: Adelphi Company, 1928. Pp. 170

REVIEWED BY EDWARD S. COWDRICK

In the summer of 1923, the soap manufacturing firm of Procter and Gamble attracted considerable interest in the industrial world by the announcement that all employees participating in the company's stock subscription and profit sharing plan would be guaranteed at least forty-eight weeks of employment every year. A little later Colonel William C. Procter interpreted the guaranty as meaning that the employee, if satisfactory, would have full time employment until he reached the age of retirement. Five years have passed and the first published appraisal of the Procter and Gamble Company's guaranty-of-employment plan, so far as this reviewer can recall, is contained in the recent volume by Professor Feis.

First, it should be noted that "the payments in cash, which the company has had to make in any of its plants under the terms of the guaranty, have been trifling." This means not only that the company has had a fairly large "buffer" of short-service employees not covered by the guaranty, but also that operations have been noticeably stabilized, partly as a result of the knowledge on the part of the management that irregular employment would mean payment of wages to idle men. Professor Feis discusses in considerable detail the methods that have been adopted by the production and sales departments to level off the peaks and valleys of operation. It is an interesting study of management methods, and should be illuminating to the executive faced with a task of stabilizing output.

As to the effect of the employment guaranty upon labor relations, the record is not wholly clear. The rate of turnover at Ivorydale dropped abruptly from 133.9 per cent in 1923 to 51.8 per cent in 1924. It is true that 1924 was a year of diminishing labor turnover in industry generally, but it is fair to credit the employment guaranty with at least a part of the sharp drop in the percentage at Ivorydale. Doubtless the plan has also served as a stimulus to induce eligible employees to enter the so-called profit sharing plan, since the guaranty applies only to profit sharers.

Referring to the psychological effect of the employment guaranty, Professor Feis says, "To the older men with families, who would face the task of seeking another job with deep anxiety, it is an invaluable assurance, which enables them to go ahead with the rest of their lives with a confidence that workmen ordinarily lack. . . . . Many of the younger single men take it somewhat more lightly."

While the employment guaranty is the outstanding feature of Proctor and Gamble labor policies, Professor Feis' study describes several other industrial relations

plans, including "profit sharing," the employees' conference committee, the pension and benefit plan, and the various systems of wage payment.

The "profit sharing" plan, which began in 1886 as genuine profit sharing, has gone through several revisions and has emerged in the form of a combination service bonus and stock subscription plan. Employees earning less than $2,000 a year are eligible after six months employment to purchase stock at the market value and pay for it through the deduction of at least 5 per cent of their wages. To the participants the company pays bonuses ranging from 10 per cent of wages in the first year to 20 per cent of wages after ten years, the bonus in each case being applied to the purchase of stock. Only participants in this plan (who number about 90 per cent of the eligibles) are covered by the employment guaranty.

The pension and benefit plan is contributory and is compulsory for every employee earning not more than $300 a month who has been with the company thirty days or longer and who can pass the prescribed physical examination. Employees contribute 1 per cent of their wages. The company puts into the fund sums equivalent to 2 per cent of the wages of participating employees. Pensions, disability benefits and life insurance are provided. In 1925, the rate of contributions from both company and employees was increased, and the benefits were scaled down. Pension payments under the revised plan "would be insufficient to maintain an aged employee who had no other funds or aid to fall back upon. They compare unfavorably with the terms of most of the pension systems sustained by private enterprises."

The employees' conference, as pictured by Professor Feis, is a somewhat innocuous form of employee representation which apparently arouses only a mild interest among the employees. "As far as my observation of the record of these representatives' meetings goes," he writes, "they have never served as a genuine, continuous consultation and exchange of opinion among the men in the plant." The representation plan "confers no power of decision to the conference. . . . . The men are not reaching forward through the plan; the management has ceased to attempt any great achievement through it. . . . . A position of subordination to management purposes was assumed at the beginning and exists up to the present despite the growing familiarity of the meetings."

Dr. Feis' book makes it evident that the Procter and Gamble Company is conducting interesting experiments in labor relationships; that its treatment of employees is in many respects generous, but that ideas of constructive coöperation in management have thus far made little headway in the big soap factories which take orders from the company's offices in Cincinnati.

PROBLEMS OF SOCIAL WELL-BEING

By James H. S. Bossard. New York: Harper & Brothers, 1927. Pp. 654

Reviewed by C. Luther Fry

The traditional method of studying social problems has failed to emphasize fundamentals. This is the basic assumption underlying Professor Bossard's book. Stated in his own words, "There really seems to be no reason for continuing to deal in our courses in social problems with the end-products of social ill-being. Thinking constructively, the elimination of industrial accidents needs emphasis more than the care of dependent children; the problem of preventable death is more fundamental than that of widowhood, even if somewhat less dramatic; the control of gonorrhea contributes more to social well-being than does the education of blind youth."

Beginning with this interesting point of departure, Professor Bossard has written a work dealing with three main considerations that tend constantly to reappear, no matter what the social problem or situation under discussion. The first is *economic* in its nature, comprehending the various problems of income. Under this heading the author takes up such topics as income as a factor in well-being, standards of living, wages and incomes in the United States, etc. The second basic factor discussed might be termed *physical*. Here the questions treated relate to health and physical welfare. The third element is *psychological*, involving the problems of mental hygiene. These three subjects, together with a concluding discussion describing changing social backgrounds and conceptions, constitute the four main divisions of the work.

Although written for classroom use the book will be found of general interest, not only because it deals with subjects of importance to everyone, but also because it presents the materials from a clarifying point of view. The author has been sane and critical throughout. Although his main purpose is to demonstrate the social importance of his three fundamental factors, nevertheless he largely avoids the pitfall of over-simplification. Throughout the discussion he brings out the interdedependence and complexity of social factors.

PROHIBITION: ITS INDUSTRIAL AND ECONOMIC ASPECTS

By Herman Feldman. New York: D. Appleton and Company, 1927. Pp 415

REVIEWED BY EDITH MULHALL ACHILLES

The findings are the result of an investigation conducted over a wide area including an elaborate questionnaire survey. From the data, twenty articles were prepared for the press. These articles comprise the book which is divided into two parts. In Part One "Effects upon Consumption and Purchasing Power" are discussed. Statistics, showing the decline in liquor consumption, the newer rôle of industrial alcohol, the use of substitutes, are amply provided.

It is Part Two which may be of greater interest in personnel directions. That part discusses "Effects upon Production." Has prohibition reduced discharge for drunkenness? Has prohibition eliminated "Blue Mondays" in industry? Has prohibition increased the efficiency of the worker? These are some of the questions discussed. Discussion is always based on first hand reports.

Every citizen should read this presentation of this subject. The author concludes that the benefits will depend, not on the enactment of statutary prohibition, but on the achievement of prohibition in fact. "While we have shown that, as a whole, the economic losses and disadvantages of prohibition have been small and few as compared to the economic advantages, we think that the final answer will be affected by the challenge of these next few eventful years."

New Books

ECONOMICS

DUBLIN, LOUIS ISRAEL. *Health and Wealth; a Survey of the Economics of World Health.* New York: Harper and Brothers, 1928. 375 p. $3.00.

FAIRCHILD, FRED ROGERS, AND COMPTON, RALPH THEODORE. *Economic Problems; a Book of Selected Readings.* New York: Macmillan Company, 1928. 621 p. $2.75.

PRINGLE, W. HENDERSON, ed. *Economic Problems in Europe Today. (Introd. by Sir Charles Grant Robertson).* New York: Macmillan Company, 1928. 157 p. $2.00.

EDUCATION

AVERILL, LAWRENCE AUGUSTUS. *The Hygiene of Instruction.* Boston: Houghton Mifflin Company, 1928. 400 p. $2.00.

HILL, HOWARD COPELAND. *Vocational Civics.* Boston: Ginn and Company, 1928. 380 p. $1.25.

HUDELSON, EARL, ed. *Problems of College Education; Studies in Administration, Student Personnel, Curriculum and Instruction.* Minneapolis: University of Minn. Press, 1928. 449 p. $3.00.

JORDAN, A. M. *Educational Psychology.* New York: Henry Holt and Company, 1928. 474 p. $2.50.

JUDD, CHARLES HUBBARD. *The Unique Character of American Secondary Education.* Cambridge, Mass.: Harvard University Press, 1928. 63 p. $1.00.

LINDSAY, E. E. *Problems in School Administration, with Emphasis on Fiscal and Personnel Phases.* New York: Macmillan Company, 1928. 568 p. $2.50.

MONROE, WALTER S., AND ENGELHART, M.D. *The Techniques of Educational Research.* Urbana, Ill.: University of Illinois, 1928. 84 p. 50 cents.

ODELL, CHARLES W. *A Glossary of Three Hundred Terms used in Educational Measurement and Research.* Urbana, Ill.: University of Illinois, 1928. 68 p. 50 cents.

VAUGHN, JAMES. *Positive Versus Negative Instruction.* New York: National Bureau of Casualty & Surety Underwriters, 1 Park Avenue, 1928. 180 p. $1.75.

INDUSTRY

ANDERSON, A. G. *Industrial Engineering and Factory Management.* New York: Ronald Press, 1928. 636 p. $5.00.

BAXTER, WILLIAM J. *Chain Store Distribution and Management.* New York: Harper and Brothers, 1928. 295 p. $5.00.

BILGRAM, HUGO. *The Remedy for Overproduction and Unemployment.* New York: Vanguard Press, 1928. 118 p. 50 cents.

BLANSHARD, PAUL. *Labor in Southern Cotton Mills.* New York: New Republic, 1927. 88 p. 25 cents.

ELDREDGE, INMAN F. *Management Plans with Special Reference to the National Forests.* Washington, D. C.: Government Printing Office, 1928. 84 p. 15 cents.

FEIS, HERBERT. *Labor Relations: A Study Made in the Procter and Gamble Company.* New York: Adelphi Company, 1928, 170 p. $2.00.

I. R. I. *Fundamental Relationships Between All Sections of the Industrial Community: Report of the First Triennial Congress of the I. R. I. held at Cambridge, England, July, 1928. Section 1.* The Hague, Javastraat 66: International Association for the Study and Improvement of Human Relations and Conditions in Industry, 1928. p. 265. H. Fl. 2.50.

LANSBURGH, RICHARD H. *Standards in Industry.* Penna.: American Academy of Political and Social Science, 3622–24 Locust Street, West Philadelphia, 1928. Paper, $2.00; cloth, $2.50.

PERSON, H. S., BINGHAM, W. V., MANN, C. R., DONALD, W. J., DONALD, EDITH KING, THORNE, FLORENCE C., AND BOWERS, G. A. *Report on the Development of Fundamental Relationships within Industry in the U. S. A.* (Reprint from I. R. I. report listed above.) The Hague, Javastraat 66: I. R. I., 1928. p. 116. H. Fl. 0.60.

Policyholders Service Bureau. *The Use of Research in Advertising.* New York: Author, Metropolitan Life Insurance Co., 1928. 15 p. *Gratis.*

Rand School of Social Science, Labor Research Department. *American Labor Year Book, 1928.* New York: Rand School of Social Science, 1928. 288 p. $2.50.

Research Bureau for Retail Training, University of Pittsburgh. *Personnel Research in Department Stores; a Report of Studies. 1918–1925.* Pittsburgh, Penna.: Author. 262 p. $3.00.

Russel Sage Foundation Library. *Industrial and Labor Problems.* New York: Russell Sage Foundation, 1928. 4 p. Apply.

SENIOR, NASSAU, W. *Industrial Efficiency and Social Economy.* (Ed. by S. Leon

Levy.) New York: Henry Holt and Company, 1928, 428 p. $8.00 set.

WARSHOW, H. T., ed. *Representative Industries in the United States.* New York: Henry Holt and Company, 1928. 715 p. $5.00; School ed., $4.00.

MENTAL HYGIENE

BAGBY, ENGLISH. *The Psychology of Personality; an Analysis of Common Emotional Disorders.* New York: Henry Holt and Company, 1928. 244 p. $2.50; students' edition, $2.00.

CORIAT, ISADOR HENRY, M.D. *Stammering: a Psychoanalytic Interpretation.* New York: Nervous & Mental Disease Publishing Company, 1928. 76 p. Apply.

GESSELL, ARNOLD LUCIUS, M.D. *Infancy and Human Growth.* New York: Macmillan Company, 1928. 435 p. $3.50.

NORMAN, HUBERT J. *Mental Disorders.* New York: Wm. Wood, 1928. 480 p. $5.00.

SEABURY, DAVID. *Growing into Life: a Magna Charta of Youth.* (Mental hygiene for children.) New York: Liveright, 1928. 715 p. $5.00.

TAYLOR, WILLIAM SENTMAN. *Morton Prince and Abnormal Psychology.* New York: D. Appleton and Company, 148 p. $1.75.

PSYCHOLOGY

ADRIAN, E. D. *The Basis of Sensation.* New York: W. W. Norton, 1928. 122 p. $2.50.

BERMAN, LOUIS, M.D. *The Glands Regulating Personality.* New York: Macmillan Company, 1928. 349 p. $3.50.

BURTT, EDWIN ARTHUR. *Principles and Problems of Right Thinking.* New York: Harper and Brothers, 1928. 602 p. $3.00.

COMMINS, WILLIAM DOLLARD. *The Effect of Education on Original Differences.* Washington, D. C.; Catholic Educational Press, 1927. 38 p. Apply.

DEARBORN, WALTER FENNO, M.D. *Intelligence Tests: Their Significance for School and Society.* Boston: Houghton Mifflin Company, 1928. 360 p. $2.50.

DE MAN, HENRY. *The Psychology of Socialism:* (tr. by Eden and Cedar Paul). Henry Holt and Company, 1928. 509 p. $4.00.

GILBRETH, LILLIAN EVELYN MOLLER. *Living with Our Children.* New York: W. W. Norton, 1928. 321 p. $2.50.

GOODENOUGH, FLORENCE L. *The Kuhlman-Binet Tests for Children of Pre-school Age; a Critical Study and Evaluation.* Minneapolis: University of Minneapolis Press, 1928. 158 p. $2.00.

HARTSHORNE, HUGH, AND MAY, MARK A. *Studies in Deceit.* (Studies in the Nature of Character.) New York: Macmillan Company, 1928. 327 p. $4.50.

MACCURDY, JOHN THOMPSON, M.D. *Common Principles in Psychology and Physiology.* New York: Macmillan Company, 1928. 301 p. $6.00.

TILNEY, FREDERICK. *The Brain from Ape to Man.* New York: Paul B. Hoeber, Inc., 1928. 2 vols. 1100 p. $25.00.

VAUGHAN, WAYLAND, F. *The Lure of Superiority; a Study in the Psychology of Motives.* New York: Henry Holt and Company, 1928. 315 p. $3.00; students' $2.00.

WATSON, JOHN BROADUS. *The Ways of Behaviorism.* New York: Harper and Brothers, 1928. 144 p. $2.00.

WICKHAM, HARVEY. *The Misbehaviorists; Pseudo-Science and the Modern Temper.* New York: Dial Press, 1928. 294 p. $3.50.

News Notes

PERSONNEL RESEARCH FEDERATION

ACTIVITIES OF MEMBER ORGANIZATIONS

University of Pennsylvania

Sales Clerks' Compensation

A study of fluctuations in earnings and sales of individual clerks in selected departments of many retail stores has been added to the already impressive list of current investigations of the *Industrial Research Department* of the *University of Pennsylvania* which appeared in the April issue of the PERSONNEL JOURNAL, pages 487–489.

Miss Anne Bezanson and Miss Miriam Hussey are in charge of the study which has the coöperation of the *Store Managers' Division of the National Retail Dry Goods Association*. Participating stores have been asked to send regularly the monthly or weekly earnings, the number of transactions and the value of sales handled by each clerk in the four departments chosen for study, together with other pertinent data such as basis of compensation, type of merchandise sold, lay-out and location of merchandise, and the facts as to events which might tend to bring about fluctuations in sales or explain irregularities. Such data for one full year are to be assembled, grouped and analyzed in a way which will reveal the merits and defects of different methods of compensation; and at the same time be informing as to many related problems of store management and sales supervision.

A full description of the purposes and plans of this study appeared in the Bulletin of the National Retail Dry Goods Association for June, 1928, pages 252 ff.

New York University

Stability of Clerical Employees

Factors which affected stability of clerical employees of New York University between July 1, 1924 and March 1, 1928, have been analyzed by Miss Anna May Jones in a thesis, the manuscript of which may be consulted at New York University or in the library of the Personnel Research Federation.

Miss Jones has compactly summarized the essential points of her investigation as follows:

"The purpose was to ascertain the trend of office personnel work at New York University, and to suggest methods for facilitating clerical adjustment. The author's interest was due to the fact that she employed and supervised office workers in this institution for two years up to March 1, 1928.

"Reasons for the release of 362 full-time permanent employees were found to be as follows:

	Per cent	*Per cent*
RESIGNATION REASONS		68
Other Positions	34	
Better pay		
New field		
Graduated		
Work near home		
More suitable work		
Left with employer		
General Reasons	29.5	
Marriage		
Health		
Study		
Family obligations		
To leave city		
To recreat		
Trouble with agency		
Deceased		
Working Conditions	4.5	
Administrative difficulty		
Time sheets objectionable		
Physical strain		

Lack of responsibility	
Environment Unsatisfactory	
DISCHARGE REASONS	27
Unsatisfactory Work	17
Lack of background	
Inaccurate	
Mind elsewhere	
Insufficient experience	
Slow	
Low intelligence	
Requirements raised	
Personality	10
Unbusinesslike	
Unreliable	
Uncoöperative	
Irresponsible	
Breach of office discipline	
Undesirable contacts	
Carelessness	
LAY-OFF REASONS	5
Total	100

"It was found that the present turnover is 40 per cent.

"There is more stability in departments requiring special training such as stenography, than in those requiring little or no special training.

"The median service of present employees is two years and seven months, and the median service of released employees is eight months.

"Discharges occur mainly during the trial period.

"Proportionately more young men than young women are discharged because of personality.

"Proportionately more young men than young women leave for other positions or because of lay-off.

"Four years of high school is the median education of present employees as well as released employees. College offices show a higher median of education than do the administrative offices, and service departments show a lower median of education than do either the college or administrative offices.

"The median age of present employees is 22½ years.

"The following conclusions were drawn:

"Frequent personal communication between the personnel office and department heads should become a greater part in the personnel work. Department heads should feel free to register any complaints and to recommend any readjustments. The personnel office should be the place to talk over any personnel problems in an endeavor to ascertain good and poor workmanship and to avoid sudden resignations and discharges.

"Training as well as selection should be emphasized especially with the beginning clerks.

"Spoken and written instructions to each employee should be increased.

"Final judgments regarding employment, transfer, follow-up and release should be made by as few persons as possible, in order to effect centralization of responsibility and to avoid any lengthy controversies.

"Scientific information should be used as a basis for evaluating and changing personnel methods.

"Reasons for release which show a relation with short period of service should continue to be observed upon the employment of new workers.

'The present coöperation of department heads and employees can be maintained with the personnel office through the democratic spirit of all working together."

Scovill Manufacturing Company

Employment Tests

The following report on personnel research in the Scovill Manufacturing Company was submitted by Dr. Millicent Pond, Director of Psychological Test Research in that organization. This statement supplements the preliminary results of the test research already reported in articles by Miss Pond in the JOURNAL OF PERSONNEL RESEARCH, January, February, and March, 1927, entitled "Selective Placement of Metal Workers."

The general plan of procedure described at that time has continued to the present date. All new employees of the company are tested in a series of verbal and non-

verbal paper and pencil intelligence tests chosen from the Army Alpha and Beta tests, and all transferred employees for whom test records have not previously been secured, are likewise tested. This summer the program yields a second group of test scores for comparison with factory criteria of success, which, like the first group, covers two years of hiring and an additional six months of experience. The total number of persons thus tested is large, but there are many occupations. Therefore some of the separate occupational groups are only now, after four years, large anough for statistical purposes.

Results from the study of the new material may or may not verify the findings reported in 1927. In certain occupations there are indications that the relations described at that time were not repeated in the following two years. In others a repetition of the relations has already been observed. Some variations in the statistical treatment of the material will be tried out. No results from this investigation are available as yet.

The study of one occupational group, *i.e.*, toolmaking apprentices, has for certain reasons progressed more rapidly than the general investigation, and this group is now being used for further test experimentation. As already reported, apprentices for the training course are now selected by interview from among applicants who score above a rather high minimum requirement in a combination of general intelligence test scores. This minimum was established as the result of a study of 105 apprentices, 60 per cent of whom were rated satisfactory by their foreman. The study predicted that the proportion of satisfactory workmen could be raised to 82 per cent or thereabout by the use of the selective measure. Last fall it was possible to report[1] a gratifying corroboration of this prediction, for in a group of 36 new apprentices hired with the aid of the tests, 86 per cent had been rated satisfactory. The improvement in quality of the group was sufficiently marked to have been noted by the foreman and instructors in the training room independently of research statistics. Material for a second check on the validity of this measure will come to hand next November.

The new test program for this group initiates a comparative study of various tests which have been proposed for the measurement of mechanical ability. The preliminary plan is to give a series of tests to approximately 100 apprentices, including the MacQuarrie Test for Mechanical Ability, the O'Connor Wiggly Block Test, the Thurstone Hand Test and Error Checking Test, a cube assembling test, the Minnesota Paper Form Board Test, and probably also another form board, and another geometrical construction test. Comparison of these tests with each other and with the foreman's ratings on the group, is expected to give interesting results for the group of employees in question, and may open the way for a further study of mechanical ability in other mechanical occupations.

A study recently made of the comptometer operators in the employ of the company has given a tentative standard for the selection of girls for this work. The criterion was a combination of ratings by supervisors, secured in the manner described by Mrs. Shellow.[2] A combination of four of the intelligence tests studied gives a correlation with these ratings of $r = .526 \pm .09$, and the addition of the scores from four tests on the comptometer, plus an error score for the comptometer, brought this up to $r = .708 \pm .06$. The tests thus chosen for the whole battery are number checking, digit-symbol substitution, arithmetical reasoning, and analogies from the intelligence tests series, and addition, multiplication, price extension, and time-card extension on the comptometer.

Finally, one aspect of the testing pro-

[1] Round Table on the Measurement of Mechanical Ability, Fall Conference of the *Personnel Research Federation*, November 17, 1927.

[2] Sadie Myers Shellow. *An Intelligence Test for Stenographers.* Journal of Personnel Research, December, 1926.

gram which is of increasing importance, is the clinical use made of the test records for advice and promotions in the upper score ranges. In factory and mill workers, on bench, machine, and general labor, one finds a wide range of test scores, both among the employees who are newly hired, and among those who have remained at the work for some time. In positions such as salesman, estimator, production clerk, stenographer, assistant foreman, clerk, etc. (also in the more technical positions of chemist, accountant, executive, etc.), the range is much narrower. A special file which sets off these score ranges from the total range, involves only about 8 per cent or 9 per cent of the tested employees, but includes in it many persons of relatively low position who may be considered for advancement. Care is taken never to use this file mechanically, nor to minimize the importance of careful interviewing. Candidates for promotion who are brought to the attention of the Employment Office in other ways, are given as full consideration as are those who are selected from the file. The value of the file is that in separating a relatively small group of records from the total payroll, it so greatly reduces the difficulty of the search for candidates for these positions, that it stimulates promotion, and discourages the more promiscuous hiring from the outside.

Federal Board for Vocational Education

Foreman Training

The Federal Board for Vocational Education has in press *Bulletin No. 128, Bibliography on Foreman Training: A Selected and Annotated List of References on Recent Books, Pamphlets, and Magazine Articles. (Trade and Industrial Series, No. 35.)*

The Board has a limited number of copies available for free distribution, which will be mailed on individual requests. Address Publications Section of the Board, at 200 New Jersey Avenue N.W., Washington, D. C. Additional copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. Price, 10 cents.

University of Chicago

Student Personnel Administration

All personnel work for freshmen and sophomores is being centralized in the office of the Dean of the Colleges of Arts, Literature, and Science. This is the result of an action of the School of Commerce and Administration in surrendering its jurisdiction over the Junior College program.

BRIAR CLIFF CONFERENCE ON COÖPERATIVE EXPERIMENTS IN PERSONNEL METHODS

A conference on Coöperative Experiments in Personnel Methods under the auspices of the American Council on Education Committee on Personnel Methods was held in Briar Cliff Manor, New York, April 23rd and 24th, 1928. The following account is condensed from the Minutes of Dr. David A. Robertson, Secretary.

There were present: H. E. Hawkes, *Columbia University* (Chairman); Mrs. Mary H. S. Hayes, *New York, N. Y.* Miss A. B. Leahy, *Connecticut College;* Miss Grace E. Manson, *University of Michigan;* F. F. Bradshaw, *University of North Carolina;* W. W. Charters, *University of Chicago;* J. J. Coss, *Columbia University;* A. B. Crawford, *Yale University;* V. A. C. Henmon, *University of Wisconsin;* L. B. Hopkins, *Wabash College;* D. T. Howard, *Northwestern University;* C. R. Mann, *American Council on Education;* D. G. Paterson, *University of Minnesota;* D. A. Robertson, *American Council on Education* (Secretary); Donald Snedden, *Harvard University* (Proxy for H. W. Holmes); E. K. Strong, Jr., *Stanford University;* M. R. Trabue, *University of North Carolina;* Ben D. Wood, *Columbia University;* C. S. Yoakum, *University of Michigan.*

Personal Record Cards

Reports were received from four standing committees. Committee I, Personal Record Cards, President L. B. Hopkins, Chairman, reported that the Committee had secured the services of two experts who had developed a high school record

card and a college record card, the features of which Professor Ben Wood presented.

It was decided that the Committee should print the College Personal Record Card, with an accompanying manual, for distribution this summer.

Achievement Tests

Committee II, Achievement Tests, H. E. Hawkes, Chairman, reported the completion of experimental editions of the following achievement tests for high schools and colleges, which will be printed by the World Book Company for use this autumn:

American Council Economics Test, by Horace Taylor, Thomas N. Barrows, and Ben D. Wood, Columbia University.

American Council Trigonometry Test, by Henry W. Raudenbush, Lewis P. Siceloff, and Ben D. Wood, Columbia University.

American Council Solid Geometry Test, by Henry W. Raudenbush, Lewis P. Siceloff, and Ben D. Wood, Columbia University.

American Council Ancient History Test, by Irving W. Raymond, Ben D. Wood, Columbia University; and Harold Timmerman, New York High School of Commerce.

American Council European History Test, by Harry J. Carman, Walter C. Langsam, and Ben D. Wood, Columbia University.

American Council Civics and Government Test, by Robert D. Leigh, President of Bennington College; Joseph D. McGoldrick, Ben D. Wood, Columbia University; and Peter H. Odegard, Williams College.

Columbia Research Bureau Italian Test, by Howard R. Marraro, and Ben D. Wood, Columbia University.

Tests in English and in Zoology are to be prepared. Alternative forms of all these tests are also contemplated, to be available a year hence; and an annotated list of all available intelligence and achievement tests at the college level will be drawn up.

Personality Measurement

Committee III, Personality Measurement, D. A. Robertson, Chairman, reported that at the West Point Conference the Committee had expressed its attitude toward present methods of measuring personality in the following terms:

"Personnel work demands, in addition to ability and aptitude tests, estimates and measurements of other personality traits.

"Rating Scale techniques are recognized as provisional pending development of objective measurements.

"Meantime sufficient progress has been made in measuring certain personality traits to warrant further trial at the present time.

"In view of the small number of valid tests of personality traits it is recognized that rating scales will be necessary for some time to come.

"In using rating scales an effort should be made to safeguard and improve rating procedures by adhering to the following principles:

"a. Rate only traits observed by the rater.
b. Rate only those traits for which valid objective measurements are not now available.
c. If instructors are to rate large numbers of students, the number of items should not exceed five.
d. Traits should be mutually exclusive.
e. No single trait should include unrelated modes of behavior."

Pursuant to this program the Committee employed W. E. Parker of the University of Michigan to study the present practices of colleges and industries. The Committee agreed that its offerings to the colleges should include (1) a rating scale; (2) a check list of qualities; (3) directions for writing useful character sketches. These are to be embodied in an instruction manual designed to train observers to note accurately useful signs of character and to record them. A tentative rating scale on which much study has been spent is given in figure 1.

Vocational Monographs

Committee IV, Vocational Monographs, C. R. Mann, Chairman, reported that after a preliminary study of existing vocational monographs by Mr. R. S. Norton of Dartmouth, the Committee agreed on certain essential elements which a monograph should possess and proceeded individually to develop model forms. Dr. Crawford of

PERSONALITY MEASUREMENTS

The information on this sheet is confidential

Name of student _____

Selection and guidance of students are based on scholastic records of achievement, health and other factual records. Personality, difficult to evaluate, is of great importance. You will greatly assist in the education of the student named if you will rate him/ with respect to each question by placing a check mark on the appropriate horizontal line *at any point* which represents your evaluation of the candidate.

If you have had no opportunity to observe the student with respect to a given characteristic, please place a check mark in the space at the extreme right of the line.

						No opportunity to observe
How does his appearance and manner affect others?	Avoided by others	Tolerated by others	Unnoticed by others	Well liked by others	Sought by others	_____
Does he need constant prodding or does he go ahead with his work without being told?	Needs much prodding in doing ordinary assignments	Needs occasional prodding	Does ordinary assignments of his own accord	Completes suggested supplementary work	Seeks and sets for himself additional tasks	_____
Does he get others to do what he wishes?	Probably unable to lead his fellows	Satisfied to have others take lead	Sometimes leads in minor affairs	Sometimes leads in important affairs	Displays marked ability to lead his fellows; makes things go	_____
How does he control his emotions?	Too easily moved to anger or fits of depression	Tends to be over emotional	Usually well balanced	Well balanced	Unusual balance of responsiveness and control	_____
How does he control his emotions?	Unresponsive, apathetic	Tends to be unresponsive				
Has he a program with definite purposes in terms of which he distributes his time and energy?	Aimless trifler	Aims just to "get by"	Has vaguely formed objectives	Directs energies effectively with fairly definite program	Engrossed in realising well formulated objectives	_____

How well do you know this student?

_____

Signature Date Position Address

FIG. 1. TRIAL RATING SCALE FOR COLLEGE STUDENTS

Revised April 23, 1928. American Council on Education: Committee on Personnel Methods

Yale supervised the preparation of one on banking and one on trust companies. Professor W. W. Charters prepared one on librarianship. Dr. C. S. Yoakum organized one on medicine, and Dr. C. R. Mann cooperated with the American Telephone and Telegraph Company in developing their document, which was issued, however, before the suggestions of Dr. Mann could be incorporated in the published form. Dr. Crawford reported the experience of Mr. Watt in developing the outlines of the two vocational monographs prepared under his direction and announced that these will be ready for publication in the autumn. Dr. Yoakum presented a report on his medical monograph and Professor Charters gave an account of the preparation of the monograph on librarianship.

It was decided that the member of the Committee responsible for developing each model monograph is to arrange for printing his own document. The Committee has undertaken to get a list of questions from the authors of the several monographs, answers to which will be secured from 40 students who will answer these questions regarding all four monographs. The Committee has undertaken also to enlist the coöperation of 20 personnel officers who will induce five or ten students to read each monograph and answer questions pertaining to that particular monograph. When the criticisms of the students have been accumulated and studied each author will revise his own monograph and each member of the Committee will be requested to list specifications for the writing of monographs and to include an analysis of difficulties. This experience will be summarized by the Committee in a manual of instructions for writers of monographs.

Bibliographies

The Secretary reported the completion of a classified bibliography of 1087 items of books and articles published from January, 1920, to January, 1928:

1. Adminstration, Problems, Aims
2. Admissions
3. College and Student Problems: Extra-curriculum Activities, Discipline, etc.
4. College and University Reports
5. Curriculum
6. Individual Training
7. Mental Hygiene
8. Orientation Classes and Devices; Conferences; Freshman Week; Freshman Programs; Sectioning of Classes, etc.
9. Personnel Officers: Deans, Counselors, Advisors, Registrars; their administrative problems, functions and preparation
10. Personnel Research: Intelligence; Psychological Tests, Grades, Rating Scales, Personality Traits, and Interviews
11. Placement and Appointment Bureaus, Employment Supervision, and Vocational Psychology
12. Vocational Guidance and Vocational Education
13. Vocational and Occupational Information

The Secretary presented a short list of books useful for Presidents, Deans and other college officers responsible for personnel administration. This list has been revised and included in the Supplement to the July *Educational Record*.

The Secretary called attention to the desirability of coöperation in making available reviews and abstracts of current books and articles related to personnel problems.

Dr. Yoakum announced that a bibliography useful to those concerned with vocational guidance had been prepared for publication by the University of Michigan.

The Chairman, Dean Hawkes, emphasized the important general purposes of the Committee on Personnel Methods and dwelt upon the desirability of relating the work of the sub-committees always to the major objectives. There followed a discussion of the importance of integrating the work of the several committees and exploring the field of personal development. A fifth committee, to be called the Committee on Personal Development was then authorized.

Additional materials related to the work of this committee may be found in the Supplement to the *Educational Record* for July. Correspondence regarding it may be

addressed to Dr. David A. Robertson, American Council on Education, 26 Jackson Place, Washington, D. C.

SOUTHERN COLLEGE PERSONNEL CONFERENCE

Dean Bradshaw supplies the following account of a significant ten-day meeting of collegiate personnel counselors.

"The first inter-collegiate group to assemble in the southeastern states for the consideration of educational personnel problems met at the Blue Ridge Assembly grounds at Blue Ridge, North Carolina, June 15–25. The 21 members of the group came in answer to an invitation extended by a committee of which President H. W. Chase, of the University of North Carolina, was chairman. The ten-day period was spent in a seminar for the discussion of personnel and guidance problems at college level and in actual counseling projects. In these projects each member of the group spent an average of 77 hours each with four counselees who had requested such assistance. The counselees were drawn from the students of the southeastern region in attendance at the annual Y. M. C. A. Conference. Mr. Owen E. Pence, Research Secretary of the Committee on Personnel of the National Council of the Y. M. C. A., conducted the seminars and acted as consultant to the group concerning counseling problems. At the conclusion of the ten-day period the faculty members in attendance voted unanimously to repeat the experiment in June, 1929. President Chase was asked to continue as Chairman of the Committee, and Dean Francis F. Bradshaw, of the University of North Carolina, was requested to be consultant to the group.

"This general plan of faculty seminar in conjunction with a counseling project at an Association assembly was first tried in 1925 at the Geneva Conference grounds at Lake Geneva, Wisconsin.

The counselors participating in conference included: R. C. Beaty, *University of Florida;* F. F. Bradshaw, *University of North Carolina;* W. M. Brown, *Washington and Lee University;* Elmer Campbell, *Transylvania University;* H. W. Chase, *University of North Carolina;* E. L. Cloyd, *North Carolina State University;* F. F. Guyton, *Alabama Polytechnic Institute;* W. T. Hodges, *William and Mary College;* E. V. Hollis, *Morehead State Teachers College;* R. B. House, *University of North Carolina;* C. L. McPherson, *Lynchburg College;* O. E. Pence, *National Council Y. M. C. A., New York;* R. C. Shoemaker, *National Council Y. M. C. A., New York;* L. E. Thatcher, *University of Mississippi;* R. D. Wellson, *Tusculum College;* J. P. Williams, *Davidson College;* R. N. Wilson, *Duke University;* C. C. Wright, *Bridgewater College, Virginia;* A. B. Butts, *Mississippi A. & M. College;* C. D. Lewis, *Lincoln Memorial University;* C. M. Sarratt, *Vanderbilt University.*

VOCATIONAL GUIDANCE AT COLGATE

Professor G. H. Estabrooks sends the following account of vocational guidance activities at Colgate University. As explained in a former News Note, the Vocational Guidance Department at Colgate was inaugurated in the Fall of 1927. Professor Estabrooks was given half-time in which to carry on research in Vocational Guidance. In addition he had a full-time secretary and ample student assistance.

"Work the first semester consisted of interviewing all the seniors with reference to their vocational choice on leaving college. This was a purely practical problem wherein one depended almost entirely on the interview. In addition, the freshmen were interviewed at least once, and such other members of the University as saw fit to call. The freshman group was regarded as the real research problem. On this group we have their intelligence ratings on the American Council of Education tests, their introvert and extrovert score and their psychoneurotic score as given respectively by Laird's Personal Inventories C–2 and B–2. Every member of the freshman class also filled out one of the Vocational Interest Blanks prepared by E. K. Strong.

"A certain amount of more strictly research work has been carried on, two articles having been sent to the *Vocational Guidance Magazine* dealing with introversion, and Strong's Blank having been filled out by about 150 members of five trade groups in Utica. This latter was with a

view to standardizing the Blank for various trades such as carpenters, painters, plumbers, etc. This work will be carried over into next year and completed then.

"The second semester has been taken up largely with actual vocational placement of the present senior class. In this work the writer had the very active coöperation of the Alumni Secretary and of Professor R. W. Moore.

"All freshmen who had not definitely decided upon some branch of activity were re-interviewed by the writer and were especially advised to use their summer vacation for orientation purposes. Thus, if a boy seemed to have an inclination towards law, he was advised to put in at least part of the summer in a law office so as to really discover what law means. Some of the freshmen had as many as four or five interviews.

"Fully 70 per cent of our graduating body are entering various forms of business. The next largest group go into the teaching profession, probably 15 per cent. This leaves about 15 per cent to be divided between such groups as law, medicine, engineering or architecture.

"Several practical steps will be taken at the opening of the next college year. For instance, several typical professions as described in Bernays' book "An Outline of Careers" will be mimeographed so that students indicating a preference for those careers can be immediately given a summary of what they involve. Secondly, Strong's Vocational Interest Blank will be given to freshmen on entering, and their resultant scores will be used in as far as it seems justifiable to give advice on this basis. Thirdly, an article entitled, "Vocational Choices of Seniors," which will appear shortly in the *Vocational Guidance Magazine*, will be distributed among the entire student body with a view to showing them how our senior classes choose as to vocations. Finally a mimeographed form will be prepared which will aim at adjusting the freshmen as to certain courses. For instance, it is found now that the incoming freshmen do not realize the importance of mathematics for advanced scientific work or do not realize the type of background required by certain graduate schools. All these devices are simply efforts to meet practical questions which are arising in the experience of the writer.

"Next year it is hoped that we will be able to carry out some research along the lines of fundamental interests.

"Because of the lack of a psychiatrist, the Director of Vocational Guidance is called upon to spend a great deal of time on mental hygiene problems. Budding cases of nervous breakdown, personality difficulties and disciplinary cases of the University are more and more finding their way into his office on an absolutely voluntary basis. In view of the extremely close relation between type of personality and vocational choice, it would seem that these two branches of college administrative work, if we may call it such, should be very closely connected. On the other hand, it is doubtful whether one man can do such a piece of work for a college of nearly 1000 students, and carry a teaching schedule besides.

"On the whole the problem at Colgate is a purely practical one, and while we are hoping to carry on some research in the near future, the practical problem is uppermost and the one which must first be met."

A BULLETIN ON GUIDANCE

Among the recent publications which are proving of practical value to public school teachers and specialists in educational and vocational adjustment, is the *General Bulletin on Guidance*, published by the Pennsylvania Department of Public Instruction, Harrisburg, Penna. Its 127 pages contain well organized and concretely helpful material on the problem of guidance; the program of guidance; materials, forms, and outlines for use in guidance; and teacher training in guidance; together with extensive bibliographies. The Bulletin is the work of many hands, brought together and organized by Mr. Harold L. Holbrook, State Supervisor of Guidance.

DIAGNOSING OPERATIVE SKILL IN DENTISTRY

The following note on tests for diagnosing operative skill in dentistry has been

communicated by Dr. Guy M. Whipple, of Danvers, Massachusetts.

"Several years ago it was reported to me that certain students in the college of Dentistry of the University of Michigan exhibited distinct difficulty in acquiring the operative skill requisite for securing a degree in dentistry, and the suggestion was made that if a suitable test could be devised that would locate such students at the outset of their professional studies, they could be advised to turn their efforts to other callings. In accordance with this suggestion, one of my graduate students administered to a group of dental students rated first-class in operative skill, and to another group rated distinctly poor in operative skill, a series of tests.

"Through circumstances beyond my control this study was never brought to completion in a form suitable for publication. Of the various tests employed, one completely separated the two groups, namely, the seemingly naïve test of sharpening a lead pencil. An unsharpened pencil and sharp knife were handed the student with the instruction to sharpen the pencil in a neat and workmanlike manner. The result was graded by the experimenter by comparison with a series of sharpened pencils exhibiting various degrees of neatness and workmanship.

"I make this somewhat sketchy report of the experiment with the idea that it may prove suggestive to someone who happens to be concerned with this or some allied problem in diagnosis of finger dexterity."

BRITISH NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY

Annual Report for 1927

In the April, 1928 issue of the *Journal of The National Institute of Industrial Psychology* appears the Seventh Annual Report and the Accounts for the year ending December 31, 1927. A brief summary of the points of particular interest to our readers follows.

General. There is evidence that employers are realizing more and more the value to them of studying scientifically the human factor in industry, as well as the serious consequences of failing to approach the problem from this angle. As evidence of this growing interest, the fees for services received by the Institute have increased 37 per cent, and the number of investigations undertaken have increased from 25 to 32. Another striking example of increased interest in the methods of industrial psychology is that the number of persons who have sought vocational guidance has more than doubled that of the previous year. There has also been a notable increase in the demand by employers for the Institute's methods of improving the selection of their employees.

Investigation Work. The report describes the salient points of each of the Institute's investigations during the past year. A list of the types of organizations for which investigations were undertaken, indicates the scope of the Institute's activities: spinning mill, gas works, chemical works, department stores (4), screw factory, motor car body building, oil refining depot, telephone factory, railway goods handling, tapestry works, omnibus service, engineering works, fancy goods factory, food production, newspaper printing office, paint works, electrical equipment works, woollen mill, restaurant, laundry, cement works, printing works (3), leather works, dramatic art, domestic work, government departments, county education authority. In addition to these investigations, surveys lasting up to two weeks have been conducted with a view to ascertaining the applicability of the Institute's methods in paper-making, in color-printing, and in dyeing and cleaning; in chemical, soap, electrical equipment, oil stove, gummed label, waxed paper, etc.

Research. The "Urban Experiment in Vocational Guidance," financed by the Carnegie United Kingdom Trust, has reached its final stages, and is being carried out in the King's Cross area of London. To quote from the report, "Advice as to the choice of an occupation, based largely on psychological tests, has been given to six hundred elementary school children on leaving school. This group, and a 'control' group of six hundred children who have not received the Institute's advice, are now

being followed up. It is not to be expected that reliable data will be available for publication until the 'follow-up' work is well advanced. . . . . Meanwhile the special knowledge already gained is being analysed and published in the form of Reports. The first of these Reports—on *Occupation Analysis*—has now been published. . . . . Further Reports now well advanced in preparation will deal with Performance Tests of Intelligence, Mechanical Ability, Manual Dexterity, and the Distribution of Attention."

Other research has dealt with the following subjects:

(a) Investigation on behalf of the National Institute for the Blind into the possibility of extending the openings for the employment of blind persons in industry, and of improving the working conditions of blind work-people.
(b) Application of the principles of industrial psychology to agriculture.
(c) Effects of the menstrual cycle on mental and muscular efficiency.
(d) Effects of ultra-violet rays on the output of industrial workers.
(e) Make-up of higher business executives.
(f) Physiology and psychology of color-matching.
(g) Temperamental characteristics in relation to (*1*) success in engineering and (*2*) vocational guidance.

Staff of the Institute. The report lists 28 on the Administrative and Investigatory staff, 5 Research and Other Students, and 10 on the Clerical Staff.

Annual Accounts. The President, The Earl of Balfour, calls attention to the fact that the Account sheet shows a total expenditure of £17,860 s.18 d.11. The liquid assets amount at the end of 1927 to £9869, or £2960 more than at the end of 1926. The promises to the Appeal Fund which are payable over the next four years amount to a further £9255, to which has to be added the new donation from the Laura Spelman Rockefeller Memorial of $20,000. There has been a rise of £3174 in the fees received for services.

WORK-HOURS, WAGES AND OUTPUT

A Notable German Research

Relations between hours of work, wages and output in German industry are being investigated for the German government by a Commission of which the Scientific Secretary is Dr. Otto Lipmann, psychologist of Berlin, whose paper on "The Human Factor in Production" is published in this issue of the PERSONNEL JOURNAL. This commission is a branch of a larger commission for the investigation of conditions affecting production and marketing (*Ausschuss zur Untersuchung der Erzeugungs— und Absatzbedingungen der deutchen Wirtschaft*). Four scientific and four technical assistants are helping with Dr. Lipmann's investigation. It has been in progress for two years and will be completed this year. Already a report on conditions in the coal mining industry (320 pages) is completed, and much research has been carried forward concerning lignite mining, the iron and steel industry, the textile industry, and agriculture. More detailed information regarding these important studies in the science of labor may be obtained from the *Institut für angewandte Psychologie, Wannseestrasse, Neubabelsberg bei Berlin.*

SURVEY OF RECENT ECONOMIC CHANGES

Study of Management

The study of Management is part of the *Survey on Recent Economic Changes* made under the joint auspices of the Department of Commerce and the National Bureau of Economic Research. The personnel of the committee to make the general Survey was announced some time ago by Secretary of Commerce, Herbert Hoover.

At that time Mr. Hoover stated that the function of the committee was to determine facts with regard to such questions as shifts in employment, changes in methods of production in industry and agriculture, and in distribution, shifts in relative price levels and profits, movements in the business cycle, shifts in standards of living, foreign trade and foreign credits, and other allied subjects which bear upon an understanding of the general business situation of the country.

The following is the personnel of the Survey committee: *Secretary Herbert Hoover, Chairman; Walter F. Brown*, Assistant Secretary, Department of Commerce, Washington; *William Green*, President, American Federation of Labor; *John Lawrence*, President, New England Council, Boston; *George McFadden*, George H. McFadden & Brothers, Philadelphia; *Max Mason*, President, University of Chicago; *Adolph C. Miller*, Federal Reserve Board, Washington; *Lewis E. Pierson*, President, Chamber of Commerce of the United States, Washington; *John J. Raskob*, Vice-president, General Motors Corporation, New York; *A. W. Shaw*, President, A. W. Shaw Company, Chicago; *Louis J. Taber*, Master, The National Grange, Columbus, Ohio; *Daniel Willard*, President, Baltimore and Ohio Railroad, Baltimore; *Clarence M. Wooley*, American Radiator Company, New York; *Owen D. Young*, General Electric Company, New York.

The *Management Section* of this general report will deal with the present situation in management and the direction from which it came. Objective indices of skill of management will be sought.

No particular emphasis will be placed on changes or on seemingly dramatic phases. Every effort will be made to avoid merely adding to the literature of success.

The study of Management is in charge of H. S. Dennison, of the Dennison Manufacturing Co. Working with him are Professor E. H. Schell of Harvard, Professor R. H. Lansburgh of the University of Pennsylvania, Professor D. R. Tucker of the Massachusetts Institute of Technology, Mr. E. R. Burton, formerly of the White Motor Co., and Mr. J. S. Keir, of the Dennison Manufacturing Co.

SOCIAL SCIENCE RESEARCH FELLOWSHIPS

The Social Science Research Council announces research fellowships in Anthropology, Economics, History, Political Science, Psychology, Sociology, Statistics, and allied fields such as Law and Human Geography.

Candidates for the fellowships are restricted to those not over thirty-five years of age who possess the Ph.D. degree, and citizens of the United States or Canada. Both men and women are eligible.

The awards are for one year, (renewable in exceptional cases), and vary in amount according to the travel necessary and the requirements of the Fellow.

The Fellowship Committee welcomes suggestions of names of outstanding men and women who may be eligible and interested in the Council's fellowships. Applications should be made to the Council's Committee on Grants-in-aid, at the address of the Social Science Research Council, 50 East Forty-Second Street, New York.

The closing date for applications for fellowships has been advanced to *December 1st, 1928*, to enable the Committee to appoint the 1929-30 Fellows not later than February 15, 1929.

WESTERN INDUSTRIAL EDUCATION ASSOCIATION

The Western Industrial Education Association seeks to promote greater efficiency in industrial education work through a better coördination of trade programs with industrial needs and experiences. It recognizes that the training program for workers must utilize the experience of the industrial executive and of key men in the trades.

Regular membership is limited to industrial executives, key men in the trades, and administrators in the industrial education field.

Present officers of the Association are: *President*, D. W. Rockey, Albuquerque, N. M.; *Vice-President*, N. B. Giles, Boise, Idaho; *Secretary*, H. A. Tiemann, Fort Collins, Colo.; *Treasurer*, F. M. Treat, Cheyenne, Wyo. There are twelve members on the Board of Directors, seven of whom are industrial executives and five educational administrators. Proceedings of the Association are available through the Secretary.

The Fourth Annual Convention met in Denver, May 4th and 5th. There were present one hundred and fifty industrial executives and thirty-one state supervisors and city directors of industrial education. Brief addresses in the general sessions were made by C. C. Gates, President of the

Gates Rubber Company, Denver; Frank Cushman, Chief of the Industrial Education Service, Federal Board for Vocational Education, Washington, D. C.; R. W. Hambrook, Federal Agent for Industrial Pacific Region, and John C. Beawick, retiring President of the Association.

Sectional meetings were an important part of the program. The railroad section was in charge of R. H. Beauchamp, Special Representative of the Vice-President of Operations, Union Pacific System. The sugar section was in charge of George M. Shaffer, Assistant General Superintendent, Great Western Sugar Company. The mining section was presided over by Mr. F. C. Miller, Chief Chemist, Colorado Fuel & Iron Company. Sectional meetings were also held for the oil industry, baking trades, welding trades and for the lumber fabrication industries. Mr. S. Lewis Land, Director of the Trade Extension Bureau, was in charge of the plumbing and heating section.

SOUND MANAGEMENT PREREQUISITE TO PSYCHOLOGICAL RESEARCH IN INDUSTRY

Psychological studies of the effects of mechanization on employees were put in their proper place in a discussion recently held before the Personnel Club of New York. The following comment by Miss Gilson on one phase of the discussion is so pungent and sensible that we have asked permission to give it to our readers:

"May I clear up an evident misunderstanding in the last News Letter of the Personnel Club? It is the paragraph reading:

" 'Perhaps the feeling of the meeting was shown in the applause given Miss Gilson when she said that, while she did not have much patience with the pernickety borings of psychology into the effects of mechanized industry on the worker, she did want to see good working conditions, short working hours, good pay, children under 16 kept out of factories and recognition given to the voice and demands of workers.'

"You may remember that when the discussion from the floor had led into some criticism of the lack of activity in constructive measures on the part of the National Association of Manufacturers, a member asked whether this association had ever done any constructive work on the subject of the effect of mechanization of industry on the worker. It was then that I said I did not think it fair to expect them to undertake investigations in this field especially when in so many places cruder things remained undone. I then went on to say that such a study as the effect of mechanization should follow and not precede the establishment of good conditions.

"I am distinctly in favor of psychological research in industry. But just as I believe no time and motion study should be undertaken until an organization has put its house in order as far as plant layout, standardization of tools and equipment, and other preliminaries are taken care of, so I believe that continuity of work, consultation with workers, fair pay, reasonably short hours, good light, ventilation and sanitation should be given attention before we worry about the effects of mechanization. In the meantime, in plants where those things have been taken care of, let us watch with interest any potential improvements psychological research on the subject of mechanization will disclose."

FORTHCOMING MEETINGS

Annual Business Meeting and Autumn Conference of the Personnel Research Federation

The regular business meeting of corporate representatives for the election of members of the Administrative Board will be held in the office of the Personnel Research Federation at 10 A.M. on Saturday, October 13.

The Annual Autumn Conference of the Personnel Research Federation will be held this year on the Friday and Saturday after Thanksgiving, November 30 and December 1. The central theme around which the program is being built is The Psychology of Work. The psychological approach to job analysis, occupational classification and related topics of guidance and placement, employment and adjustment on the job will be applied to various kinds of work in offices

and factories, to the work of sales and supervisory forces, and possibly to certain of the professions. Psychological aspects of fatigue, monotony, and occupational accidents will be emphasized; but special prominence will be given to the need for a fresh analysis of jobs which will reveal elements of interest and satisfaction ordinarily overlooked. Members are urged to read, in anticipation of this conference, the thoughtful article by Dr. Otto Lipmann in this number of the PERSONNEL JOURNAL, on *The Human Factor in Production.*

Annual Safety Congress

The *Seventeenth Annual Safety Congress* will be held at New York, October 1st to 5th, under the auspices of the National Safety Council. There will be about 100 meetings in five hotels, with 300 speakers, and it is expected that 6,000 persons will attend. Mr. W. H. Cameron, Managing Director of the National Safety Council, states that, although the program is far from complete, numerous subjects are already listed which will be of especial interest to personnel directors, as follows:

At the Automotive Session, *The Foreman and Safety* is one of the special subjects that should attract personnel workers. Another topic at this gathering will be *Introduction of the New Employee*, which will be followed by a discussion of rehabilitation work.

The program of the Employees Benefit Association will present for discussion the following subjects: (1) *Sickness Insurance Through Benefit Plans vs. State Insurance;* (2) *Ways and Means of Using Benefit Associations for Better Coöperation in Safety;* (3) *Health and Other Employee Activities;* (4) *What Further Assistance, If Any, Should be Given to Disabled Members Who Have Exhausted Their Benefits?;* (5) *Is a Nursing Staff Valuable in Administering the Benefit Association?;* (6) *Should Hospital and Surgical Expenses Be Added As Additional Benefits under Relief Plan?;* (7) *Should Pension Plans and Relief Plans be Combined for Greater Economy and Effectiveness?*

The Food Section will have a discussion on the subject *The Value of Physical Examinations.*

Plant Safety Supervisors will talk about *What Should be the Status of the Group Plant Safety Engineer in the Organization with which He is Connected?*

The Metals Section will present discussions of (1) *Safety from the Viewpoint of Management;* (2) *Safety from the Viewpoint of Supervisors;* (3) *Developing a Safe Human Factor in Our Industries;* (4) *The Placement of Men or What the Surgeon Can Do.* In addition, there will be a debate on *Resolved, That the Foreman is Responsible for Accidents that Occur in his Department.*

At a session of the Mining Section, time will be given to a discussion of *Methods and Results of Improved Foremanship Conferences*, and to *Educating the Miner.* There will be a round table conference on *Safe Handling of Men.*

Among the topics scheduled for discussion at the Paper and Pulp Section sessions are: (1) *The Promotion of Health in Conjunction with Safety;* (2) *The Importance of the Safety Department in Comparison with the Other Departments in the Plant and Its Relation to those Departments;* (3) *How to Administer First Aid in Both Small and Large Plants.*

Members of the Power Press Section will discuss, (1) *The Woman Operator in the Punch Press Department;* (2) *Training the Foreman to be a Teacher*, and other subjects to be announced later.

A question scheduled to be answered by delegates attending the Public Utilities Section is *Why Blame the Foreman for Accidents?* At the Round Table session there will be a discussion of *How Safety Looks to the Worker.*

There will be a special session for Executives and Engineers who will discuss, *Safety and the Individual*, and *Safety and Labor Production.*

The Woodworking Section will dwell on *Mental vs. Mechanical Factors in Accident Prevention.*

The study of *Personality in Relation to Public Accidents* will be discussed in a conference which the Public Safety Division is arranging for the forenoon of October 5. The questions before this group will include, how to sift out the prone-to-accident drivers of automobiles, trucks, taxi-cabs and

street-cars; how to diagnose their difficulties; and how to deal with these drivers so as to make them safe operators. Investigations of the human factors in highway safety will be planned in this conference.

American Management Association

Institute of Management. The third technical meeting of the Institute of Management will be held at the Palmer House, Chicago, Monday, November 12, 1928. There will also be a business meeting of the Institute of Management at the same time.

Autumn Conference. The regular Autumn Convention of the Association will be held at Chicago, November 13 to 15, at the Palmer House. The program which is being prepared by the Programs Committee, Harry B. Gilmore, Secretary of the Western Electric Company, *Chairman*, will be approximately as follows: a half-day session will be devoted to the topics, *Compensation of Executives; The Tolls of Budgeting; Management and Research Activities in American Companies; Pensions and Methods of Finding Work for Men Past Middle Age; Health Education and Activities for Employees; Functions of Presidents; Chairmen of the Board and Boards of Directors.*

Office Executives' Conference. The semi-annual conference of office exectives will be held at the Palmer House, Chicago, Friday, November 16th.

Bureau of Personnel Administration

The coming winter, 1928–1929, the Bureau of Personnel Administration will offer twenty conferences on *Fundamental Objectives of Management* as its seventh series of conferences on *Business Management as a Profession.*

Among the speakers already scheduled are Dr. Wesley Clair Mitchell, Henry S. Dennison, Ordway Tead, Mary P. Follett, Thomas Vernon Smith, Roscoe Pound, Harlow S. Person, Frank H. Knight, Harry A. Overstreet, and Wade Wright.

The topics covered are Energy, Health, Vision, Science, Security, Leadership, Morale, Ownership, Trusteeship, Coöperation, Responsibility, Control, Leisure, Beauty, Freedom, Growth, Justice, Faith, Skill, Education.

A folder giving full details will be mailed upon request to the Bureau, Graybar Building, 420 Lexington Avenue, New York.

PERSONAL ITEMS

Dr. Max Freyd, for three years on the staff of the Personnel Research Federation, is engaged in research for the Retail Research Association. He continues the managing editorship of the PERSONNEL JOURNAL.

Mr. S. S. Brooks has left the staff of the Personnel Research Federation to become Dean of Men of the State University of Montana at Missoula.

Miss Agnes B. Leahy, formerly in charge of the Personnel Bureau in Connecticut College for Women, joins the staff of the Personnel Research Federation on September 1.

Miss Florence Jackson of Wellesley, who has done much to spread vocational information and sound personnel practice in the women's colleges, will this year devote a still larger part of her time to consultation and lecturing in colleges in various parts of the country.

Mr. Elliot Smith leaves the Dennison Manufacturing Company September 1st to become Professor of Personnel Management in the Department of Industrial Management, Sheffield Scientific School, Yale University.

Dr. W. W. Charters, for the past four years Professor of Education in the University of Chicago, has resigned to become Director of the Bureau of Educational Research at Ohio State University, succeeding Dr. B. R. Buckingham, who is now connected with a publishing firm in Boston and who will also give instruction in the Harvard Graduate School of Education.

Mr. Donald B. Watt, recently an associate of the Department of Personnel Study at Yale University, has been appointed Director of Personnel at Syracuse University.

Current Periodicals

PREPARED BY LINDA H. MORLEY, *Industrial Relations Counselors, Inc.*

COLLEGE STUDENTS

CLARK, F. S. *Are college men wanted?* Forbes, Vol. 21, p. 16–18. June 1, 1928.

Practice of large firms in recruiting from colleges.

RICHARDSON, M. B. *Here he is again, the college man: what a survey developed.* Transportation, Vol. 2, p. 15–20. May, 1928.

VANDERBLUE, HOMER B. *Objectives of graduate business training.* Bulletin Harvard Business School Alumni Association, Vol. 4, p. 185–187. May 15, 1928.

College men in business.

EDUCATION

RUGGLES, C. O. (Dean, College of Commerce and Administration, Ohio State University). *Education for management.* Bulletin of the Taylor Society, Vol. 13, p. 87–92. April, 1928.

How can schools of engineering and schools of business correlate their curricula and research more effectively?

RUML, FRANCES (University of Chicago). *Formative period of higher commercial education in American universities.* Journal of Business of the University of Chicago, Vol. 1, p. 238–255. April, 1928.

Historical sketch.

EDUCATIONAL INSTITUTIONS—PERSONNEL METHODS

BOOK, WILLIAM F. (Indiana University). *Newer personnel practices in colleges.* Personnel Journal, Vol. 7, p. 38–53. June, 1928.

Extended study of the present situation.

Minnesota student personnel program. Educational Record, Vol. 9, Supplement. 40 p. April, 1928.

Reports of American Council on Education.

EMPLOYEE REPRESENTATION IN MANAGEMENT

DICKINSON, ROY. *When the workers run the plant.* Printers' Ink, Vol. 143, p. 109–115. June 28, 1928.

What has happened to a unique industrial experiment in five years. Henry A. Dix and Son, a firm run by the employees.

TAYLOR, PAUL S. *Leighton coöperative industries.* Journal of Political Economy, Vol. 36, p. 212–228. April, 1928.

Employee representation plan.

EXCHANGES

Bureau of Public Personnel Administration. *Proposed rules for a public personnel agency, with explanatory comments.* Public Personnel Studies, Vol. 6, p. 117–155. June, 1928.

Introductory article, outline of the proposed rules and text of the proposed rules with explanatory comments.

EXECUTIVES

KETCHAM, F. A. (Executive Vice-President, Graybar Electric Co.) *Management's need for executives.* Printers' Ink, Vol. 143, p. 3–8; 160–164. April 26, 1928.

How shall modern industry answer the young man's question, "What is the chance for getting ahead?"

FORD MOTOR COMPANY

LI, CHEN-NAN (Yale University). *Summer in the Ford Works.* Personnel Journal, Vol. 7, p. 18–32. June, 1928.

Personal experience.

HEALTH

GARDINER, GLENN L. *Home hygiene and worker "pep."* Industrial Psychology, Vol. 3, p. 249–252. June, 1928.

HOLEPROOF HOSIERY COMPANY

BRINKMAN, E. E. (Industrial Engineer, Holeproof Hosiery Company). *Forty per cent saving in worker's time.* Manufacturing Industries, Vol. 16, p. 103–106. June, 1928.

Motion-time analysis makes big reduction in operation costs on work which time-study had already improved. Method in use at the Holeproof Hosiery Company's plants.

INFORMATION—DISSEMINATION

KAUFFMANN, ALFRED (President, Link-Belt Company). *Give the facts and get coöperation.* Manufacturing Industries, Vol. 16, p. 21–23. May, 1928.

Methods of imparting to employees information regarding the company's work and problems and securing their active help in accomplishing results.

INSURANCE—SOCIAL

Costs of social insurance in Germany in 1927. Ministry of Labour Gazette, Vol. 36, p. 169. May, 1928.

Gives statistics for sickness; accident; invalidity insurance; non-manual workers and miners pensions. Costs.

HOHAUS, R. A. AND OTHERS. *Social insurance.* Record of the American Institute of Actuaries, Vol. 16, p. 106–118. 1927.

JOB ANALYSIS

COMMONS J. R. AND MOREHOUSE, E. W. *Legal and economic job analysis.* Yale Law Journal, Vol. 37, p. 139–178. December, 1927.

JOINT RELATIONS

COMBS, FRED W. (Gisholt Machine Company). *Teamwork in management.* Industrial Psychology, Vol. 3, p. 197-201. May, 1928.

Conference methods of the Gisholt Machine Company described.

LIBRARIES

Being too busy to read cost executive $1,000. Nation's Business, Vol. 16, p. 130–131. May, 1928.

National Sheet Metal Contractor's suggestions on the subject.

LUNCH ROOMS

Eating during working hours. Service Letter on Industrial Relations, New Series no. 11, p. 4. June 5, 1928.

Rolling store on wheels supplied in a factory.

MENTAL HYGIENE

ELKIND, HENRY B. (M.D.). *History of mental hygiene.* Journal of Outdoor Life, Vol. 61, p. 215–217. April, 1928.

MORALE

MORGAN, EARL B. *Morale: the crux of your personnel problem.* Forbes, Vol. 21, p. 19–20, 36, 38. June 1, 1928.

PENSIONS

LAPP, JOHN A. (Marquette University; President 1927 National Conference of Social Work.) *Advantages of insurance in distributing the cost of illness and old age.* American Labor Legislation Review, Vol. 18, p. 181–188. June, 1928.

The thesis of the article is "There is no substitute for social insurance in distributing the cost of illness and old age."

PRODUCTION

COBB, CHARLES W. (Amherst College) and DOUGLAS, PAUL H. (University of Chicago). *Theory of production.* American Economic Review Supplement, Vol. 18, p. 139–165. March, 1928.

Discussed by Sumner H. Schlichter, p. 166–170.

PROFIT SHARING

Great Britain—Labour Department. *Profit sharing and labour co-partnership in 1927.* Ministry of Labour Gazette, Vol. 36, p. 202–205. June, 1928.

These statistics are in continuation of those contained in the Report on Profit-Sharing and Labour Co-partnership in

the United Kingdom issued in 1920, and in annual articles subsequently published in the Labour Gazette.

PSYCHOLOGY

FRANK, HERMAN. *Psychology of trade unionism: how job environment affects the group-mind.* Labor Age, Vol. 17, p. 20–21. June, 1928.

HULL, E. HAYDEN (Consulting Personnel Engineer, N. Y.). *Management psychology a joint responsibility.* Bulletin of the Taylor Society, Vol. 13, p. 93–100. April, 1928.

Out of new coöperation between business executives and psychologists can emerge a new, practical, scientific and successful technique of human engineering.

KORNHAUSER, ARTHUR W. *Industrial psychology movement.* Society of Industrial Engineers Bulletin, Vol. 10, p. 9–10. May, 1928.

Summary of an address delivered at the meeting of the S.I.E., Chicago Chapter, May 15, 1928.

RATING

HALEY, WILLIAM. *Rating scale.* Personnel, Vol. 5, p. 174–177. May, 1928.

As used by The Public Service Electric & Gas Company, Essex Power Station, Newark, N. J.

KINGSBURY, P. S. *Where the employees rate themselves.* Burroughs Clearing House, Vol. 12, p. 20–23. May, 1928.

Cleveland Trust Company.

RESEARCH

TOLMAN, CHARLES P. (Consulting Engineer). *Research—a need in every plant.* Manufacturing Industries, Vol. 16, p. 25–28. May, 1928.

If an industry makes even as little as 1/300th the improvement the electrical industry has done, its profit position will still be bettered 10 per cent.

SAFETY

GARDINER, GLENN. *Home distractions that cause work accidents.* Industrial Psychology, Vol. 3, p. 212–216. May, 1928.

Safety problems from the point of view of mental conditions.

SAVINGS

FOSTER, WILLIAM TRUFFANT and CATCHINGS, WADDILL. *Progress and plenty.* Century Magazine, Vol. 116, p. 257–268. July, 1928.

A way out of the Dilemma of Thrift.

SCIENTIFIC MANAGEMENT

FUSS, HENRI (Chief of the Unemployment Service, International Labour Office). *Rationalisation and unemployment.* International Labour Review, Vol. 17, p. 802–817. June, 1928.

The question examined in the article is whether there is any justification for the fear sometimes felt that scientific management is an appreciable cause of unemployment.

STOCK OWNERSHIP

Woolworth (F. W.) Company. *Why Woolworth stopped selling stock to employees.* Printers' Ink, Vol. 143, p. 175–176. May 17, 1928.

It was found that the plan had a number of disadvantages.

SUGGESTIONS

DICKINSON, Z. CLARK (University of Michigan). *Suggestion systems compared.* Personnel Journal, Vol. 7, p. 12–17. June, 1928.

Statistical analysis of returns from suggestion systems.

TESTS

BENGE, EUGENE J. (Chief Statistician, Philadelphia Rapid Transit Company). *Preparation of a mental test.* Personnel, Vol. 5, p. 181–184. May, 1928.

HUNT, THELMA (Middle Tennessee State Teachers College). *Measurement of social intelligence.* Journal of Applied Psychology, Vol. 12, p. 317–334. June, 1928.

Vocational guidance application of these tests is recommended. The study was made in the Department of Psychology of the George Washington University.

VERDOLLIN, HENRI. *Psycho-technical selection of employees in Paris.* Electric Railway Journal, Vol. 71, p. 742–743. May 5, 1928.

Tests for motormen.

TEXTILE TRADE-JOINT RELATIONS

HERRING, H. L. *Tracing the development of welfare work in the North Carolina textile industry.* Social Forces, Vol. 6, p. 591–598. June, 1928.

TRAINING

BENGE, EUGENE J. (Chief Statistician, Philadelphia Rapid Transit Company). *How to develop able supervisors.* Trained Men, Vol. 8, p. 59–60. Summer 1928.

Foreman training.

FALK, HAROLD S. (Vice-President and Works Manager, Falk Corporation). *What apprenticeship can mean to industry.* Manufacturing Industries, Vol. 16, p. 89–92. June, 1928.

A sound program solved the trained labor problem for one community. Work of the Apprenticeship Committee of the National Metal Trades Association in Milwaukee described.

GILBERTSON, H. S. (Director of Personnel, Lehigh Coal and Navigation Co.). *Tomorrow's bosses.* Coal Age, Vol. 33, p. 359–360. June, 1928.

Training men for positions of responsibility in the Lehigh Coal and Navigation Company.

HELMERS, C. C. *Training employees properly to represent the company.* Public Service Management, Vol. 44, p. 217–218. June, 1928.

MACDONALD, J. H. *Sources of supply and methods of hiring general office workers.* American Stationer and Office Outfitter, Vol. 100, p. 16–18. April, 1928.

Advantages and disadvantages of each source of supply indicated.

SHATTUCK, JOHN G. (Assistant General Manager, Frank G. Shattuck Co.). *Personality and personnel.* Magazine of Business, Vol. 53, p. 579. May, 1928.

Chain store policies in this respect.

TURNOVER

BEZANSON, ANNE. *Advantages of labor turnover; an illustrative case.* Quarterly Journal of Economics, Vol. 42, p. 450–464. May, 1928.

Study of the flexibility of the labor supply in tapestry manufacture.

HO, CHING JU (Psychologist, R. H. Macy & Co.). *Finding the real causes behind labor turnover.* Industrial Psychology, Vol. 3, p. 246–248. June, 1928.

Exit interview practice of the R. H. Macy Co.

STREYCKMANS, F. B. *Turning over the turnover problem.* American Gas Journal, Vol. 128, p. 34–37. March, 1928.

People's Gas Light and Coke Co. suggestion system described. Transfer, or turnover, within a company commended.

UNEMPLOYMENT

Effect of labor saving devices to be ascertained. United States Daily, Vol. 3, p. 1077. June 25, 1928.

Employment Service of the Department of Labor to make a study to show the effect of labor-saving devices of unemployment.

VACATIONS

Summary of vacation questionnaire. Associated Industries of Massachusetts-Industrial Relations Department Occasional News Bulletin Number 1, p. 7. Received June 8, 1928.

Includes statistics on the practice in regard to: Jury duty; National guard duty; National guard summer duty; R.O.T.C. duty; and Citizens' military training camps.

WAGES

AMERICAN CENTRAL LIFE INSURANCE COMPANY. *How we solved the salary problem.* System, Vol. 1, p. 27–36. June, 1928.

Includes forms showing statement of duties, final wage scale, job grade and a table of job grade factors.

KUCZYNSKI, JURGEN, and STEINFELD, MARGUERITE. *Wages in manufacturing industries, 1899 to 1927.* American Federationist, Vol. 35, p. 695–701. June, 1928.

Statistical analysis.

SYLVESTER, L. A. (Staff Member, Stevenson, Harris and Jordan). *When should incentives be changed?* Manufacturing Industries, Vol. 16, p. 37–40. May, 1928.

How to settle the perplexing question of adjusting wage rates that are out of line with existing methods of operation.

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